



*FIG. 1*

100

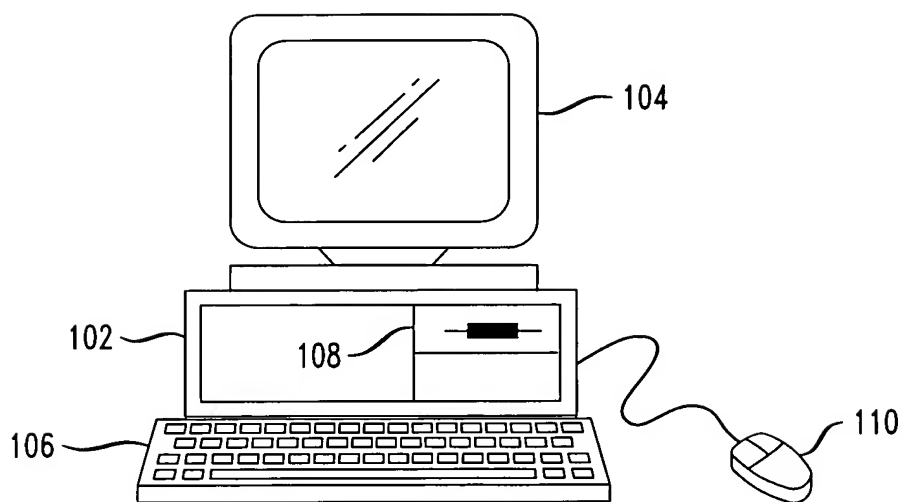


FIG. 2

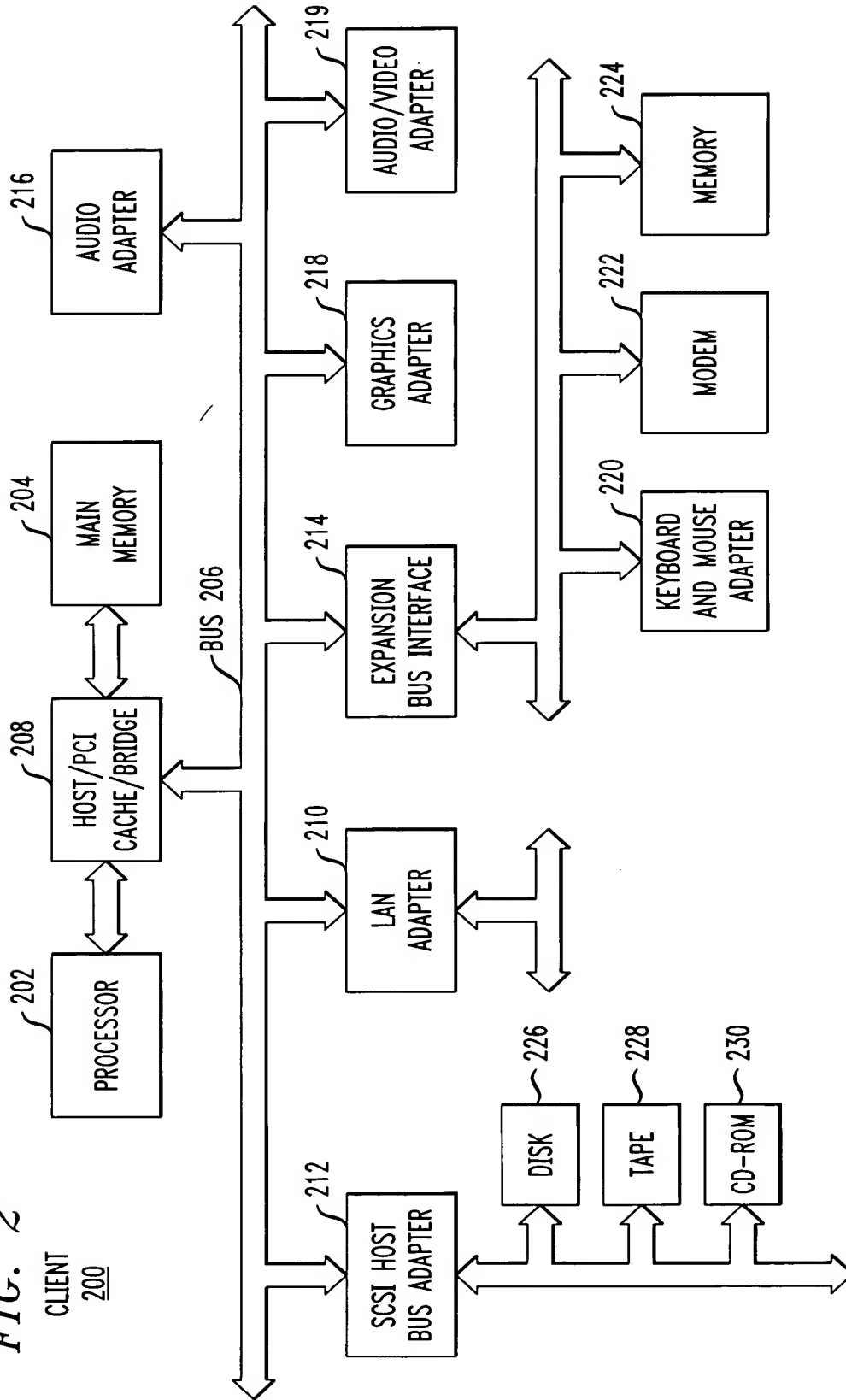
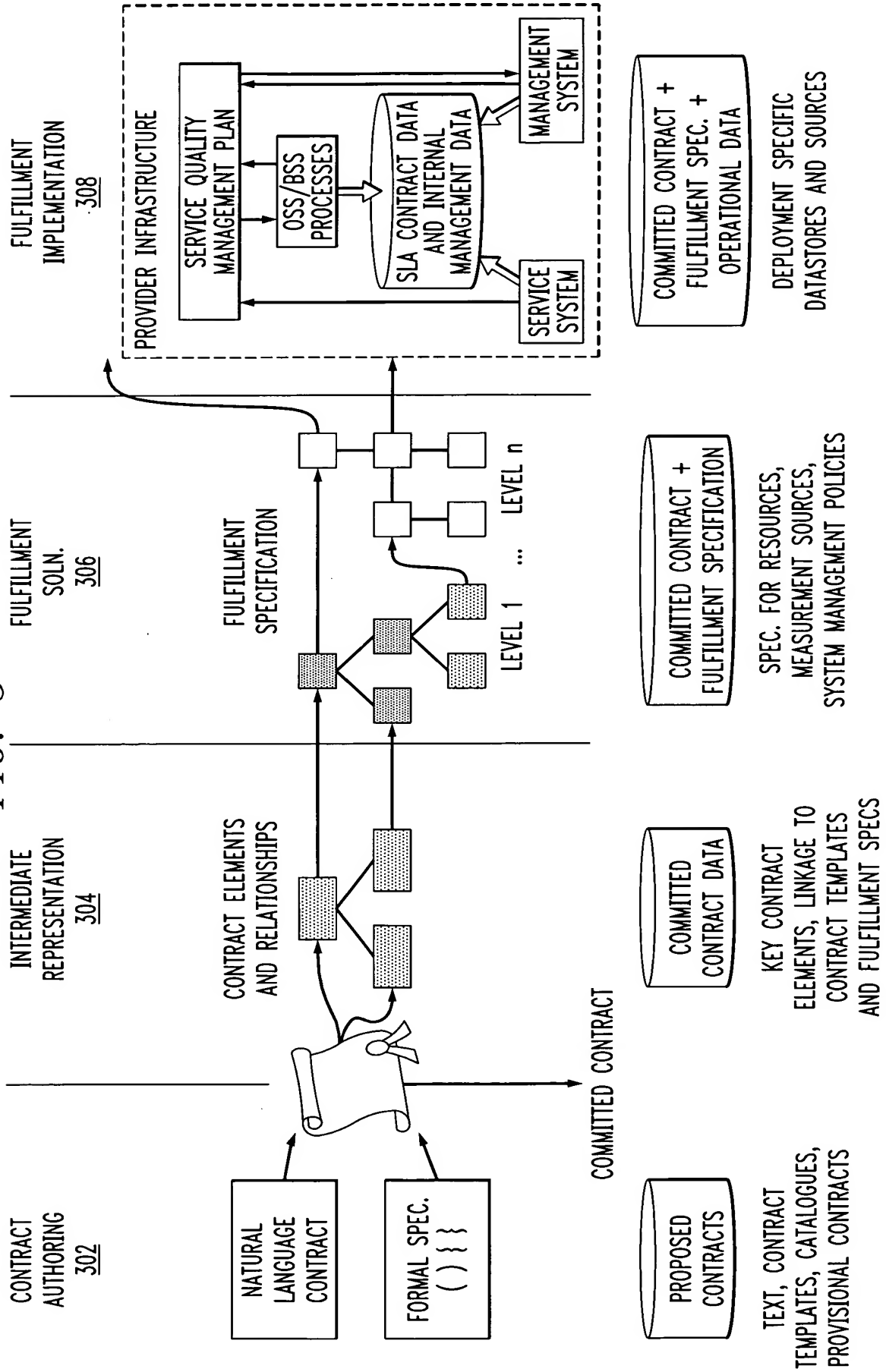


FIG. 3



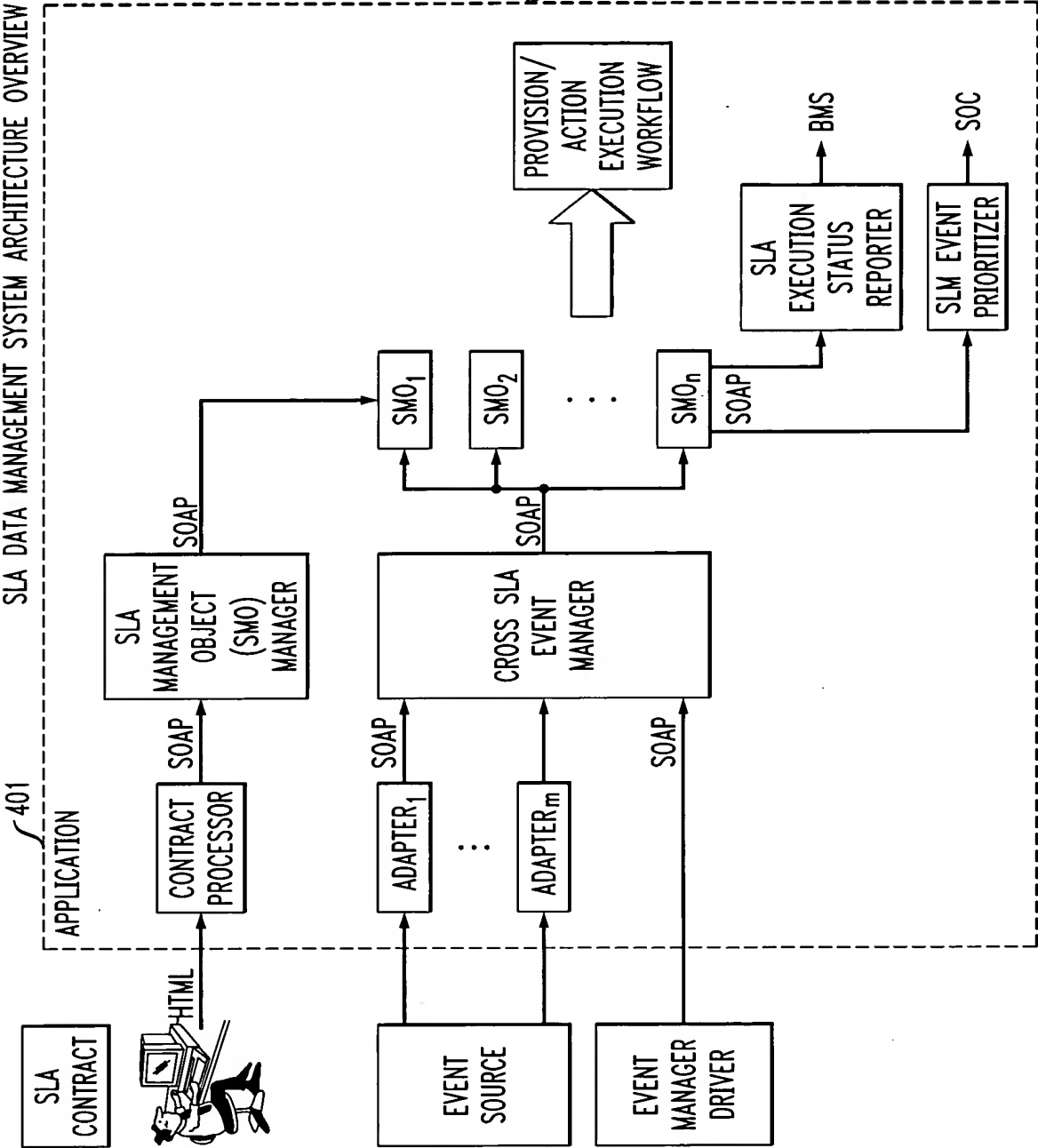


FIG. 4A

FIG. 4

FIG. 4A	FIG. 4B
	FIG. 4C

SLA DATA MANAGEMENT SYSTEM ARCHITECTURE OVERVIEW

FIG. 4B

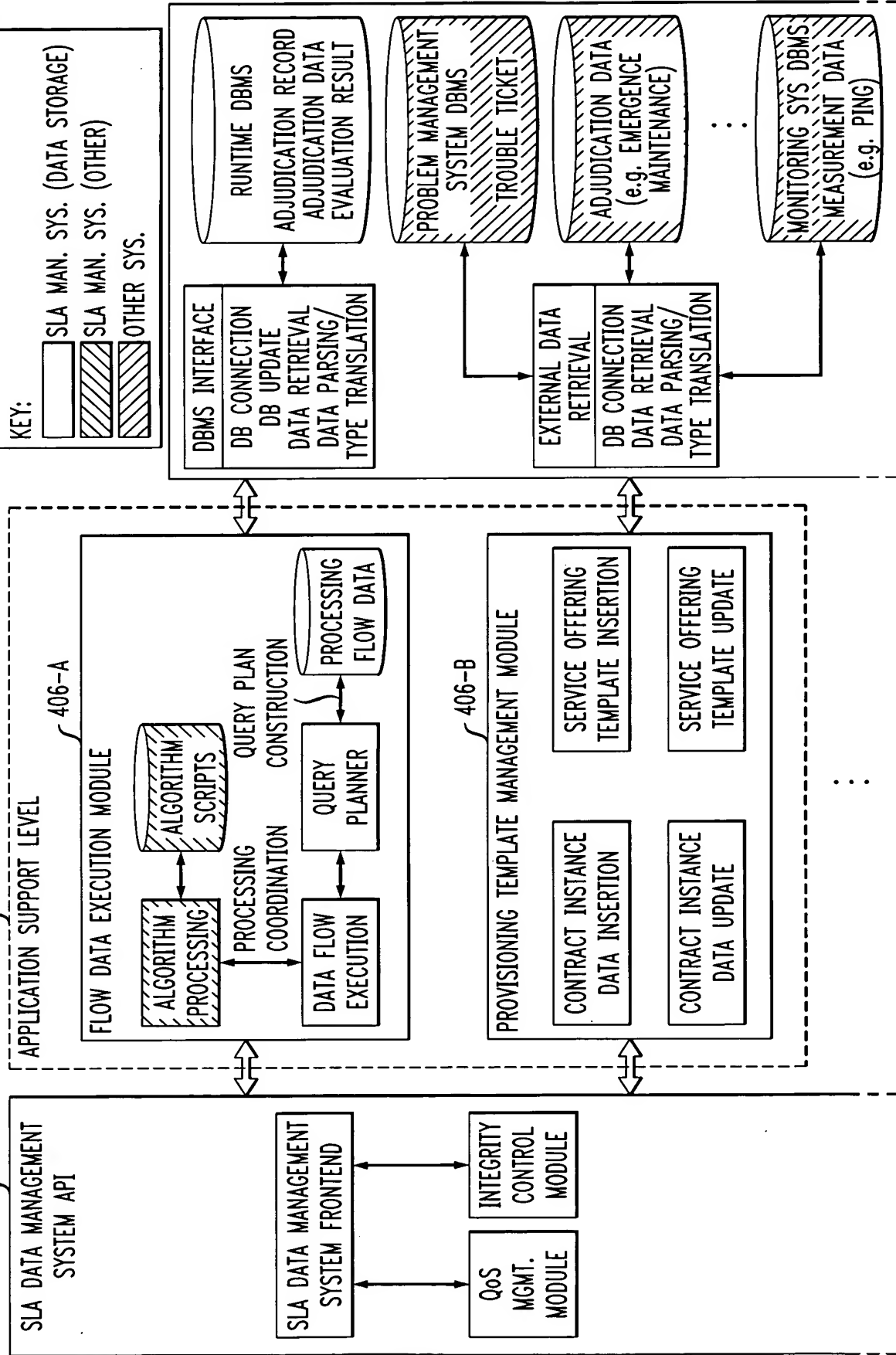


FIG. 4C

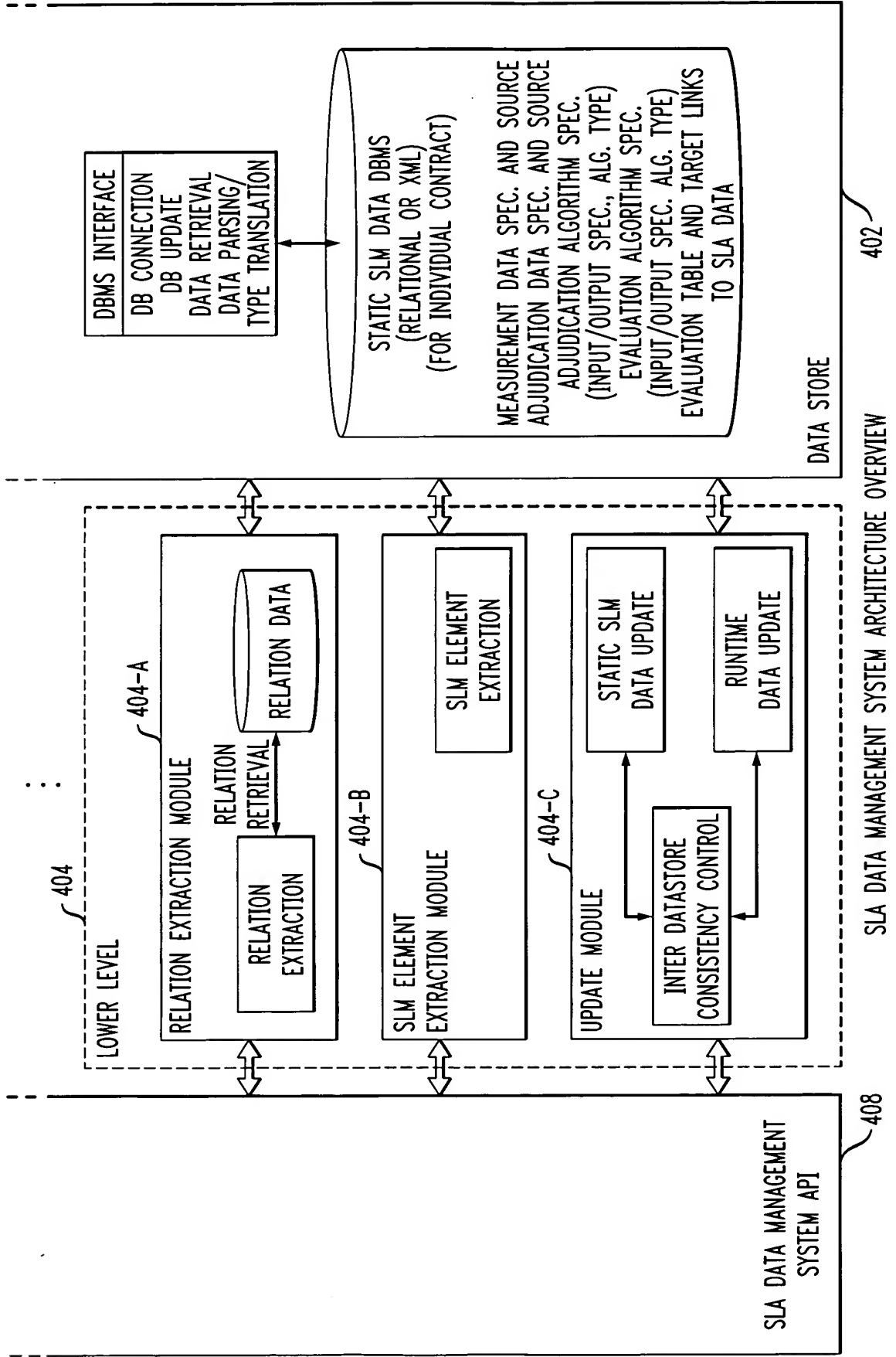


FIG. 5

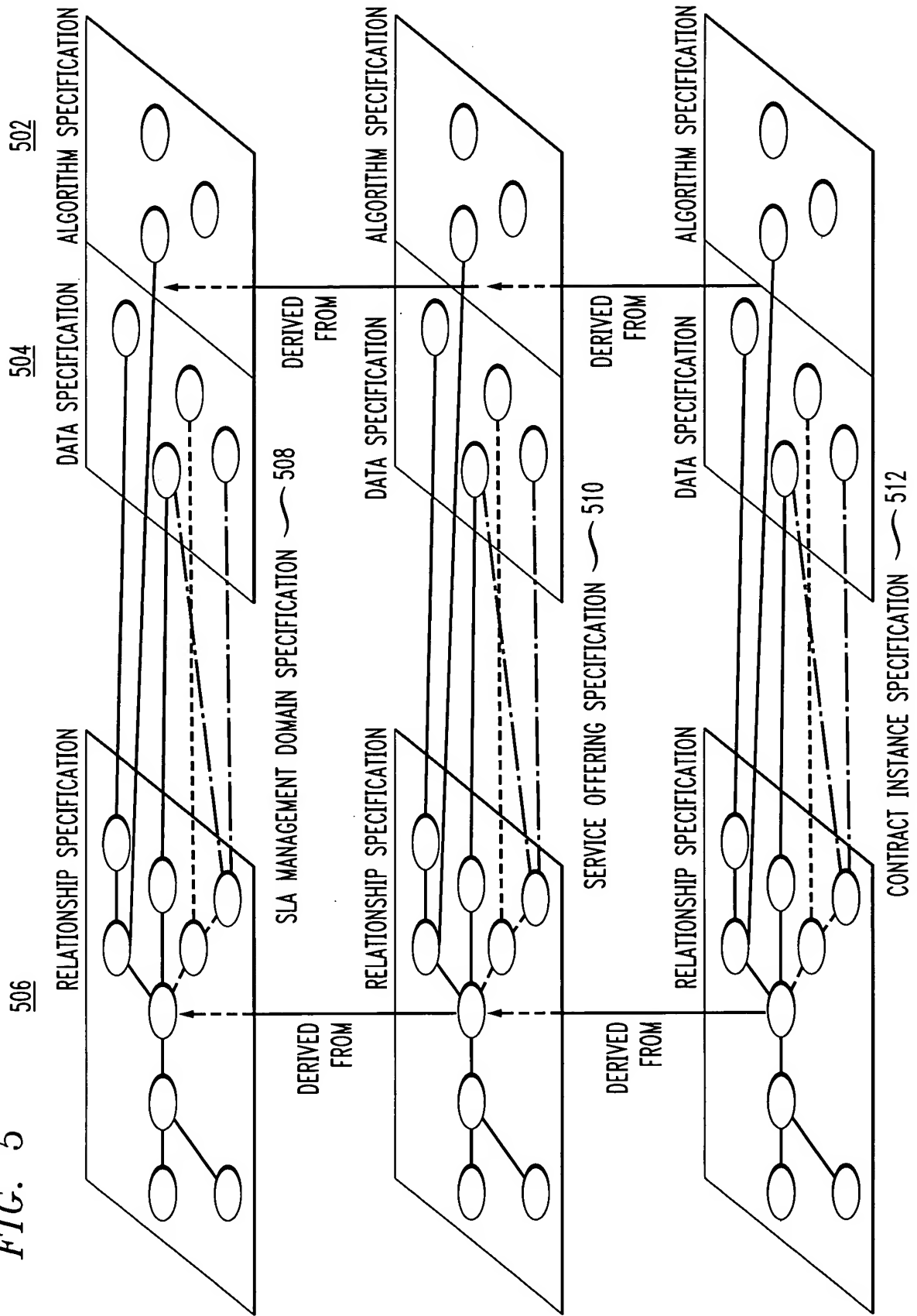


FIG. 6

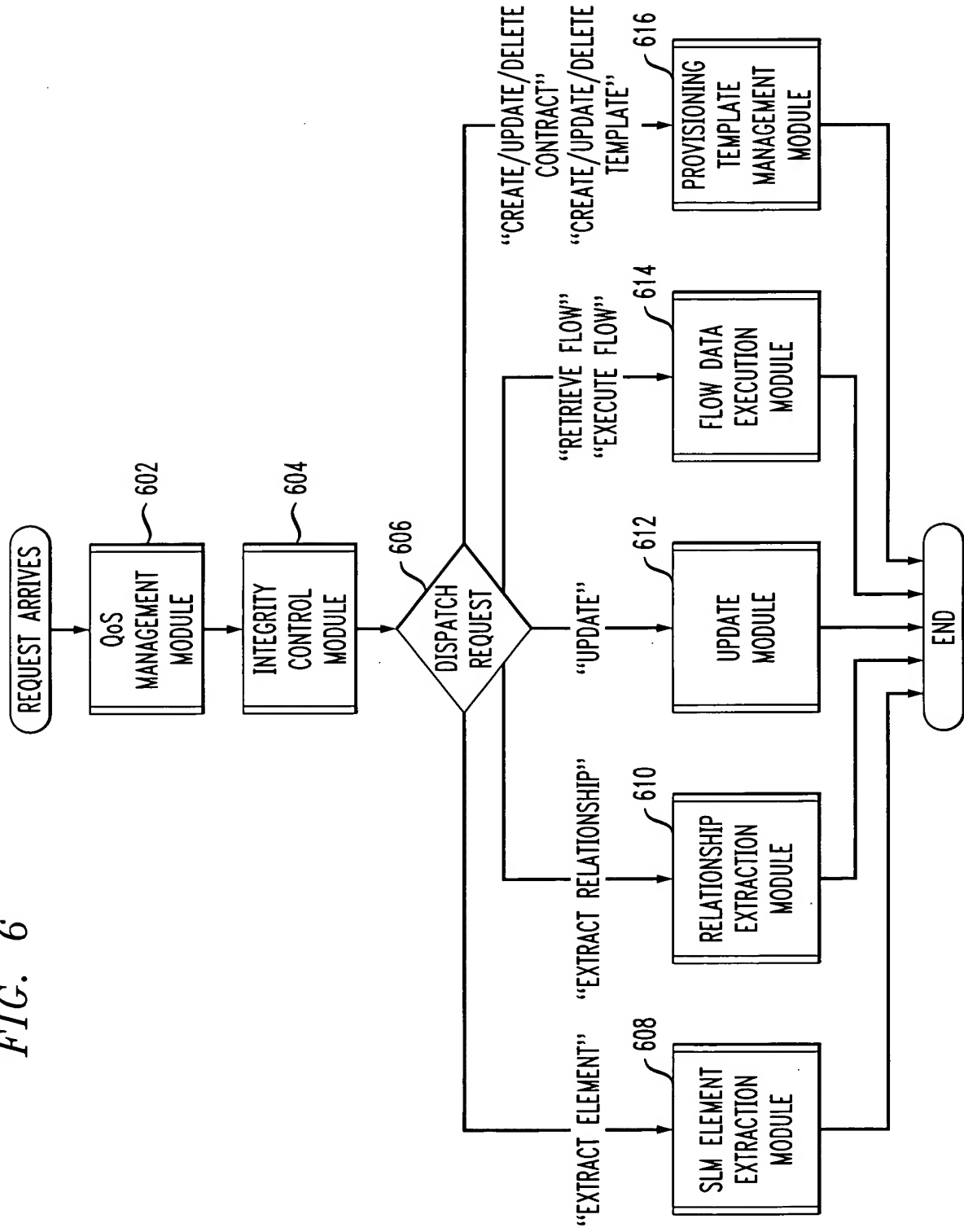
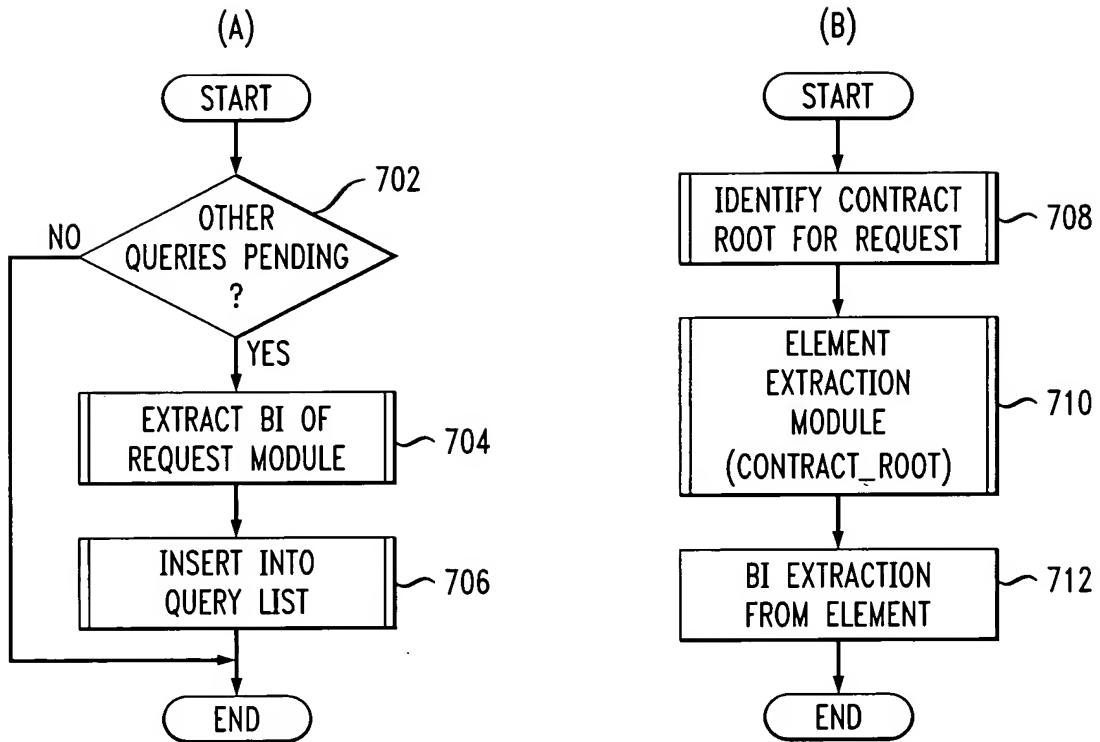


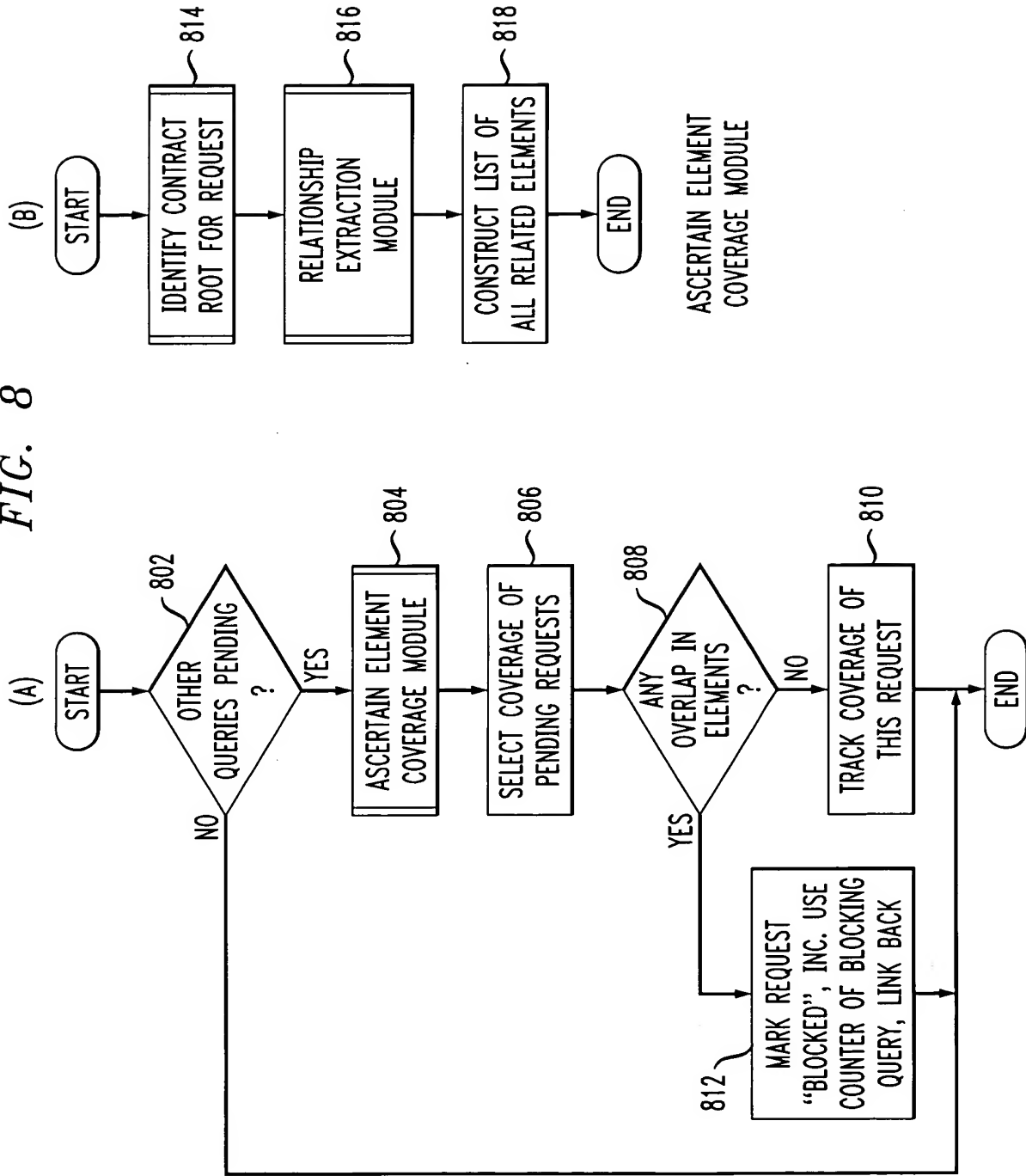


FIG. 7



ASCERTAIN BI OF  
REQUEST MODULE

FIG. 8



*FIG. 9*

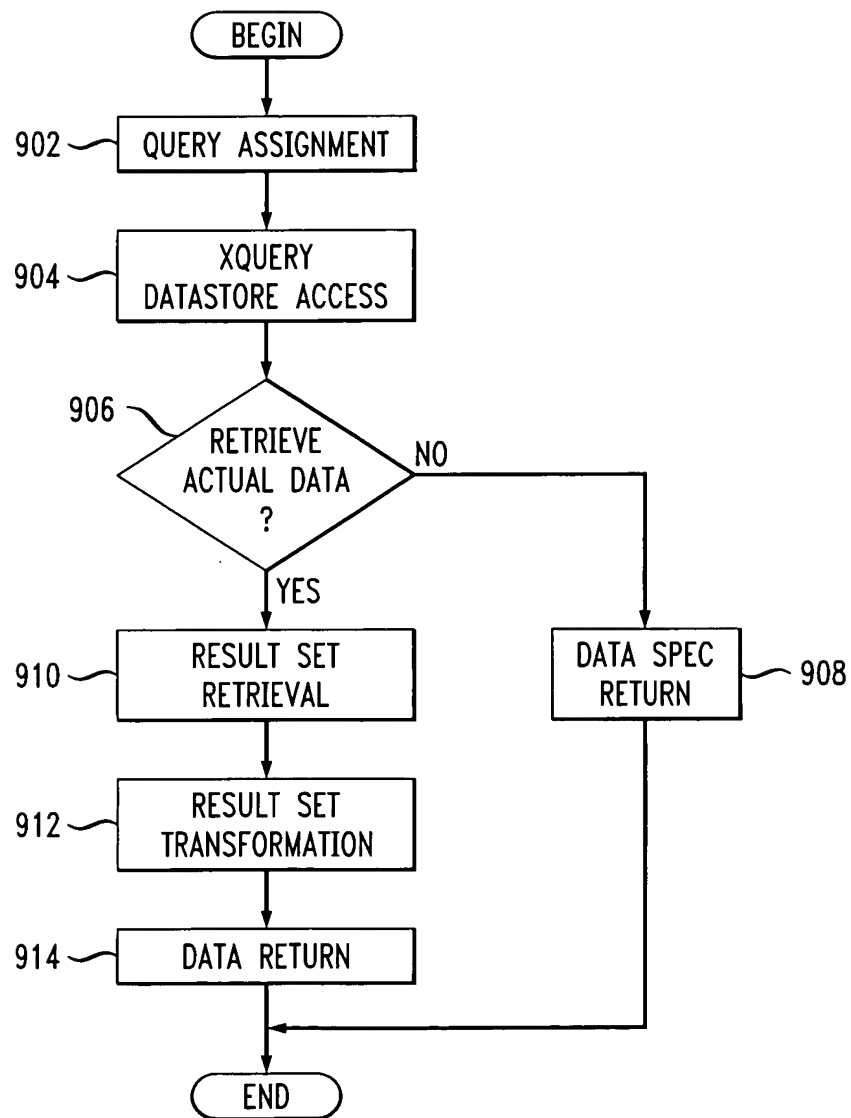
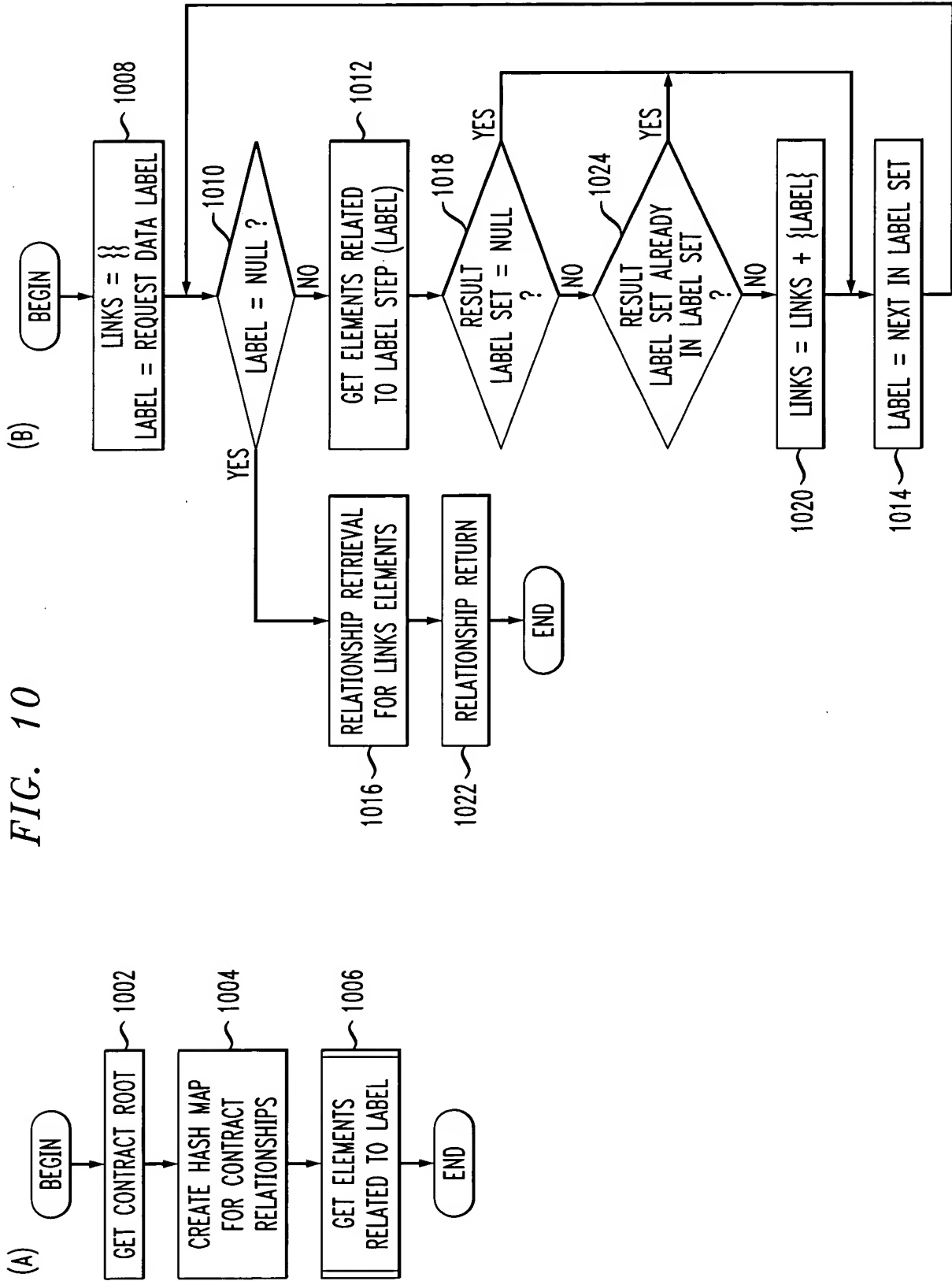


FIG. 10



*FIG. 11*

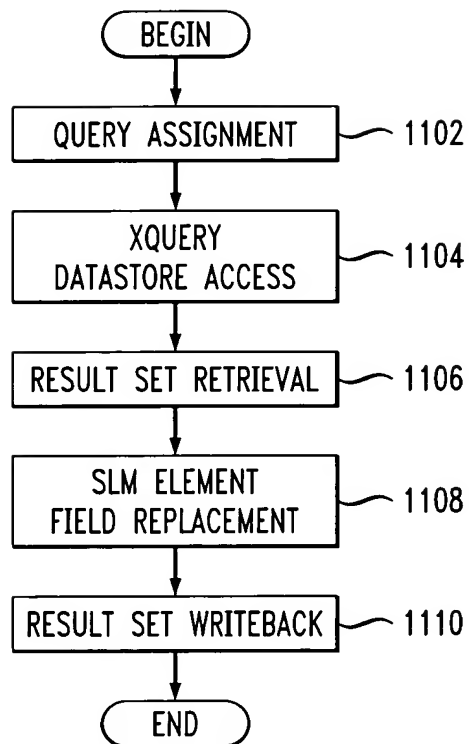


FIG. 12A

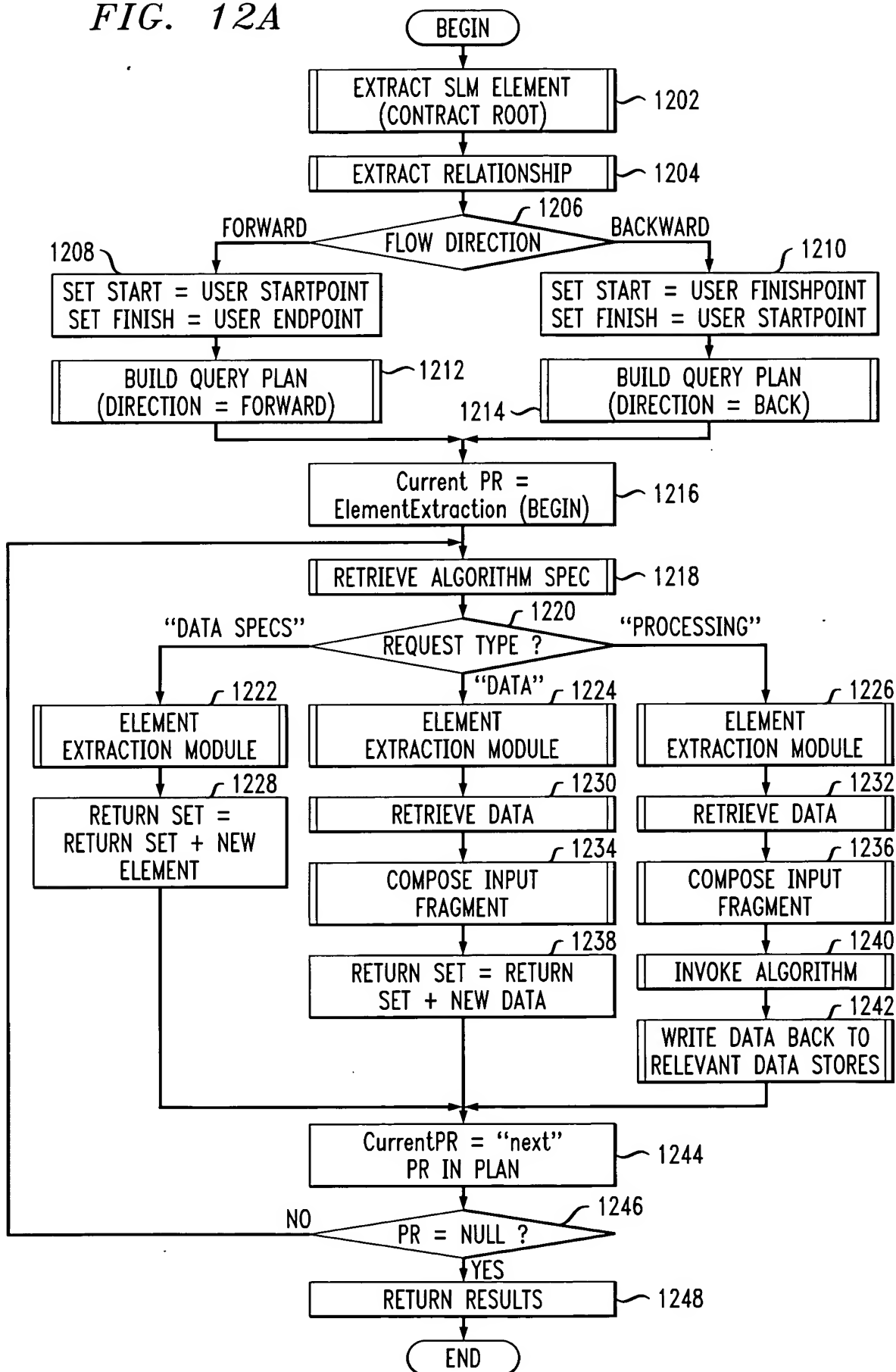


FIG. 12B

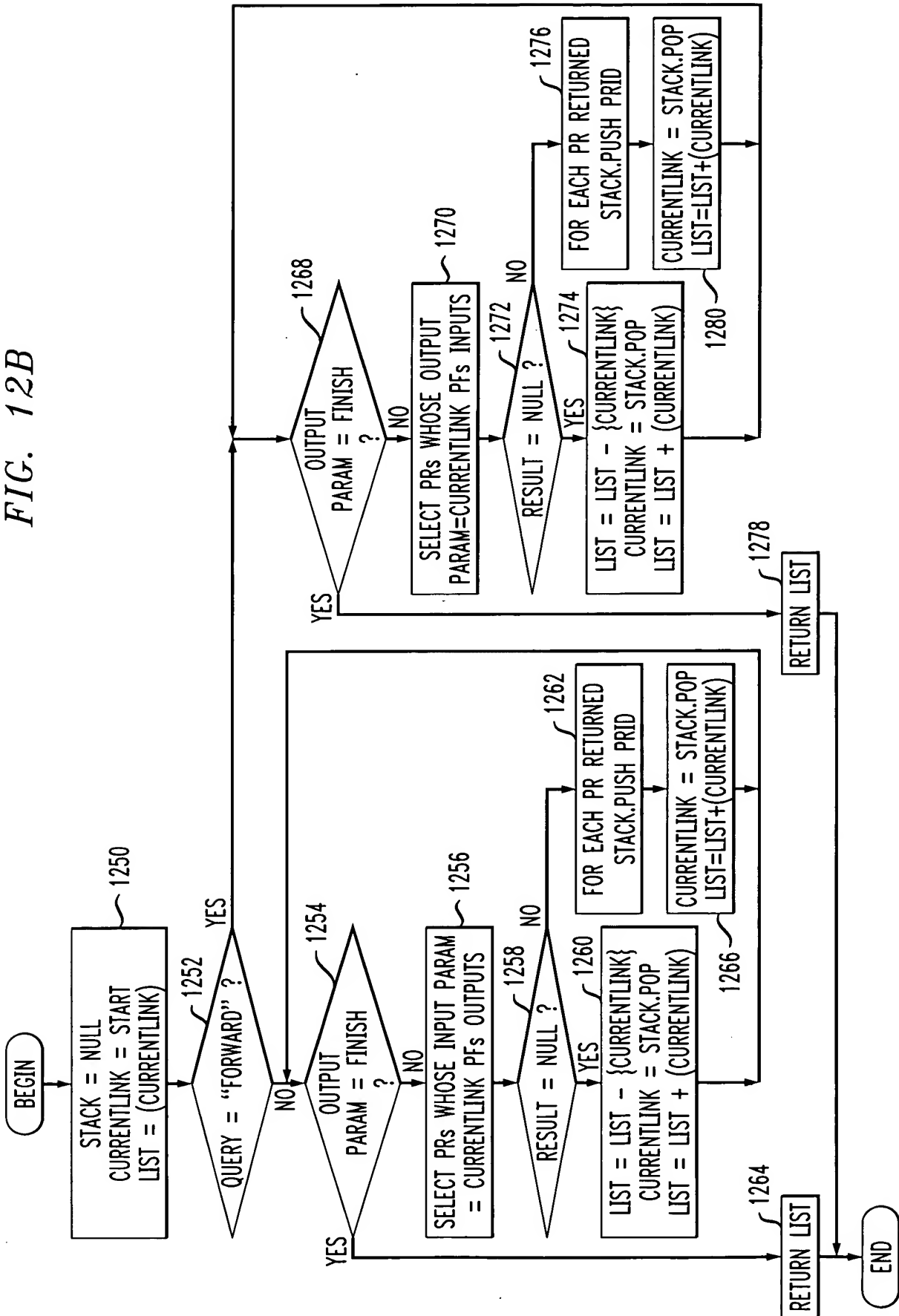


FIG. 13

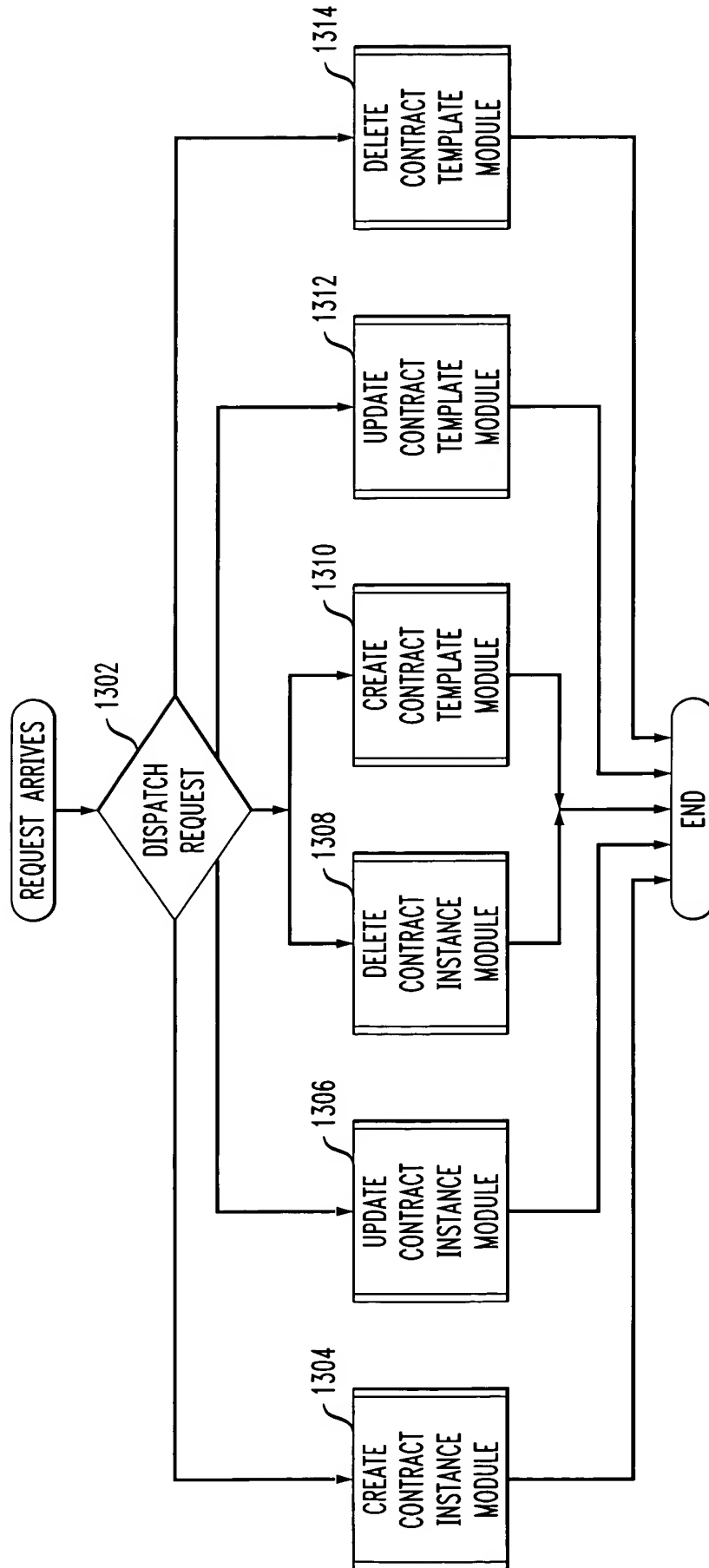




FIG. 14



FIG. 15

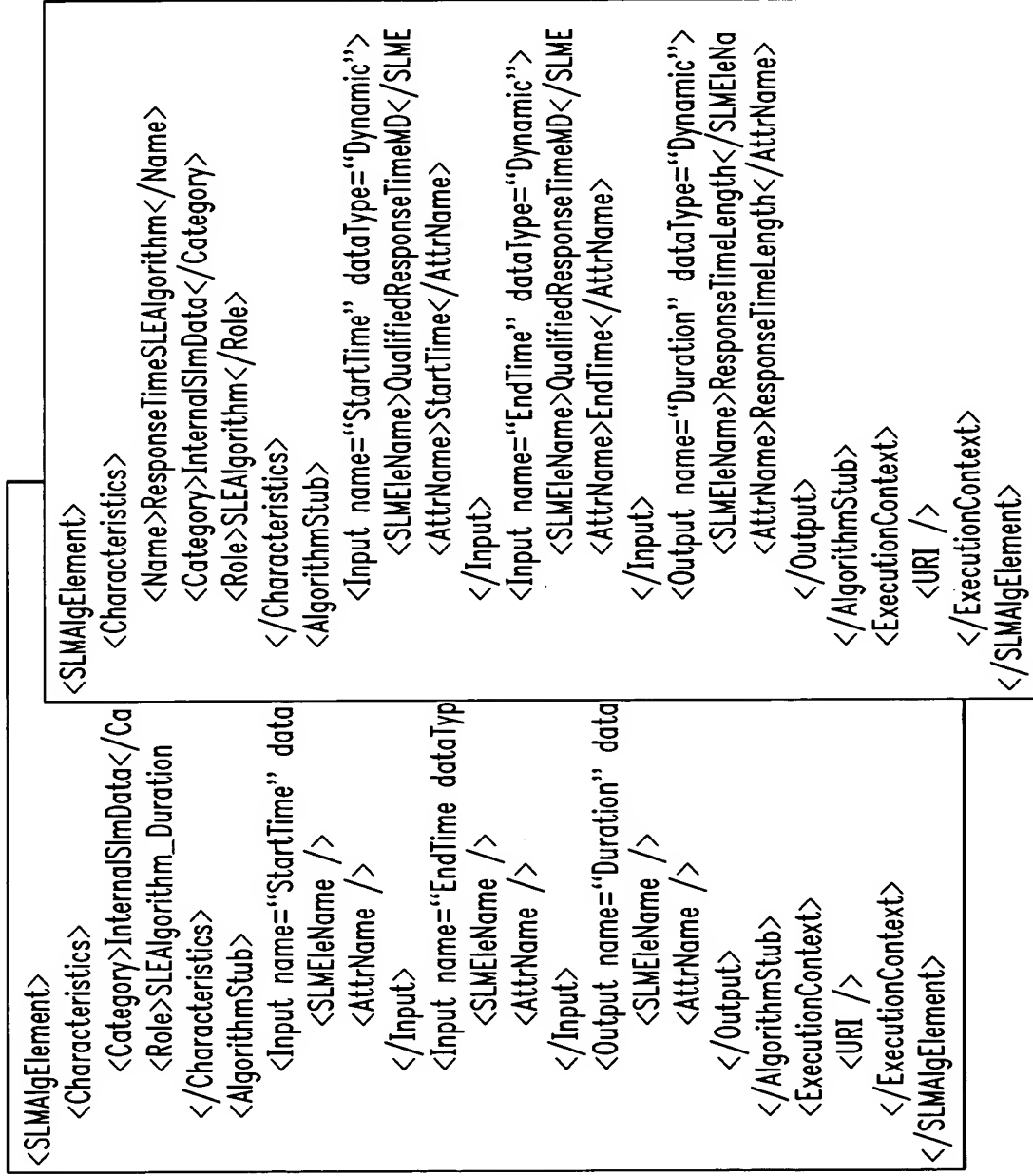


FIG. 16

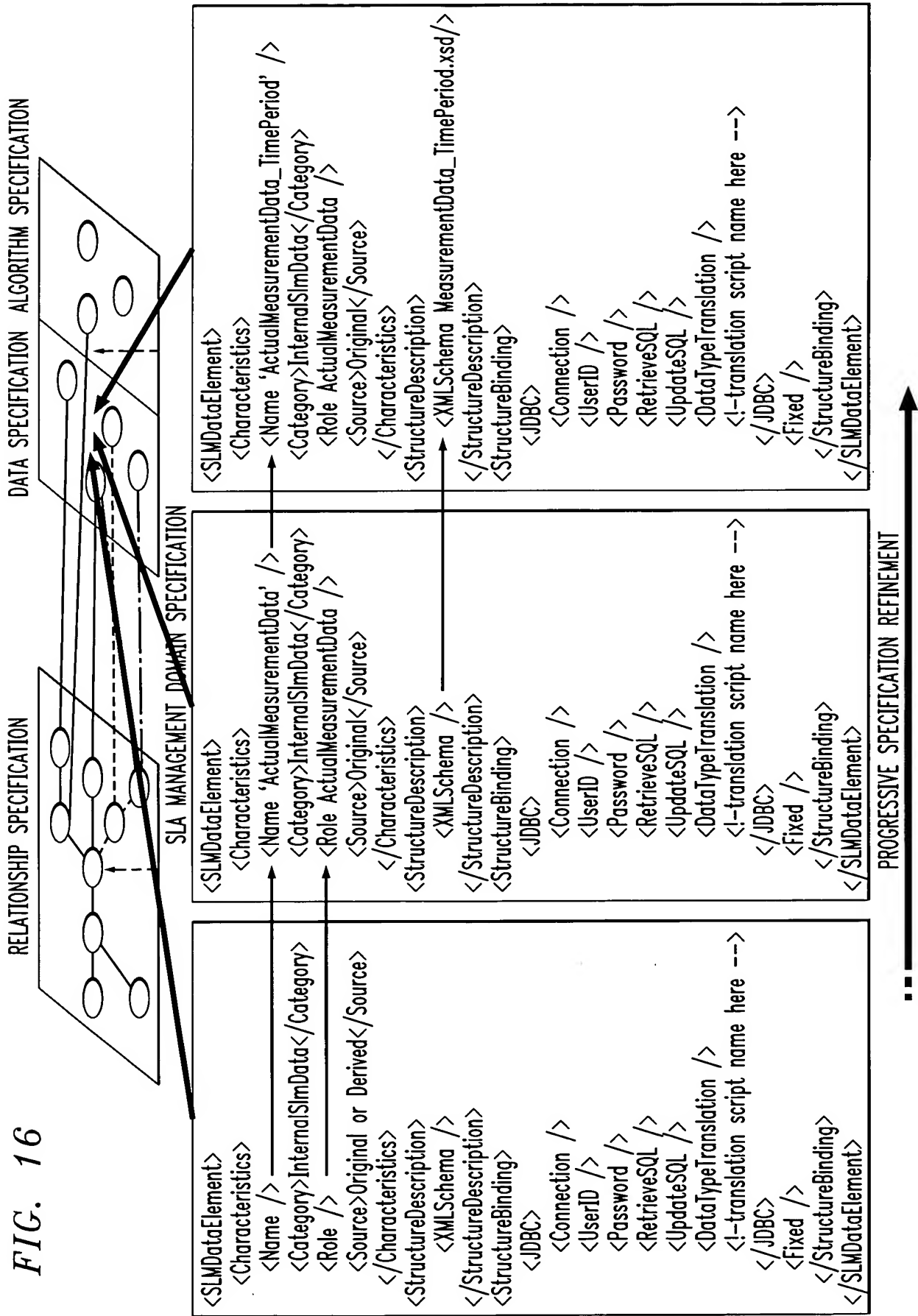


FIG. 17

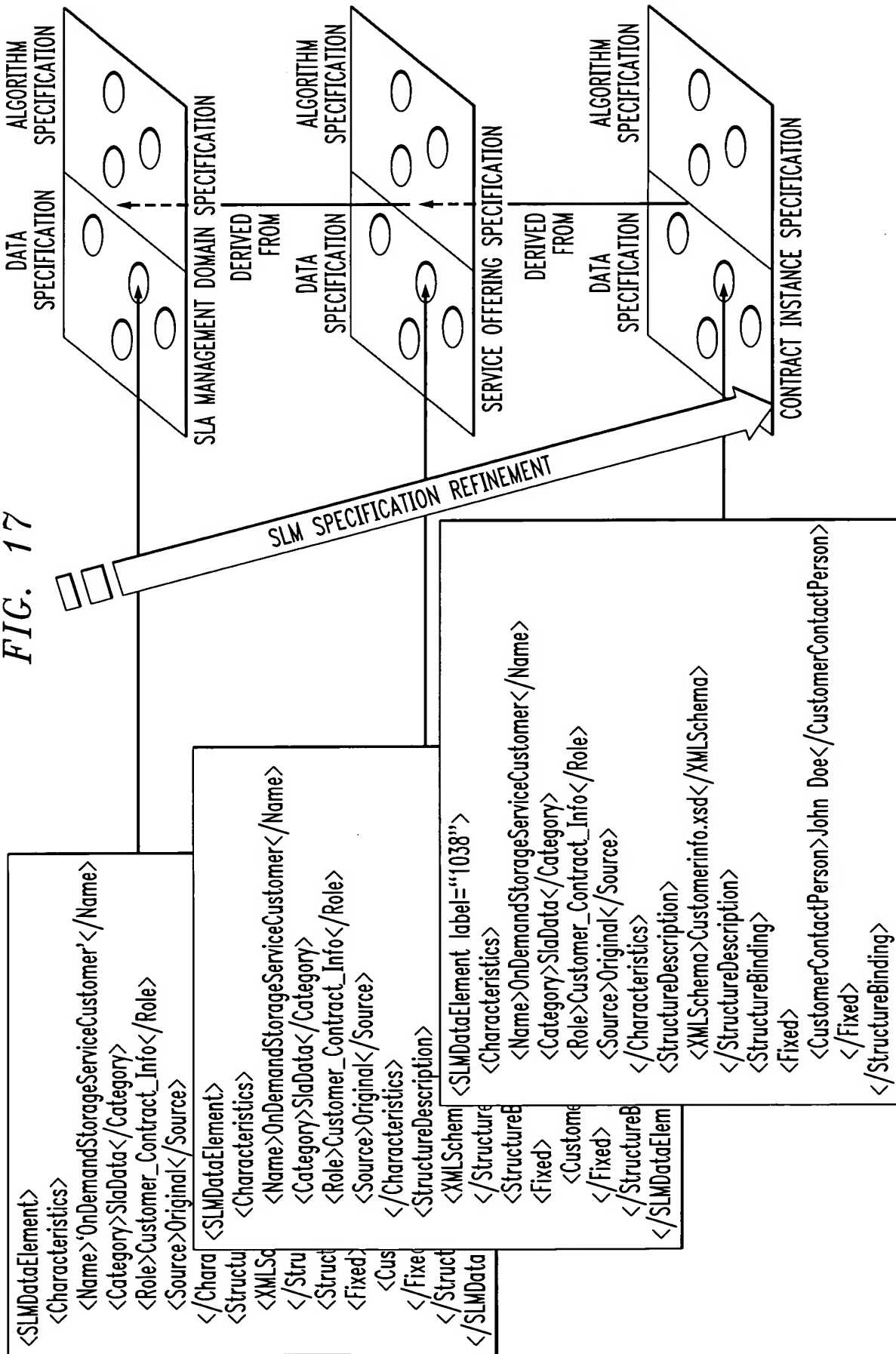


FIG. 18

FIG. 18A
FIG. 18B

FIG. 18A

```

<SIAM>
<SchemaRelationshipList>
<SchemaRelationship label="R1002">
<CentralData role="ContractRoot" category="SlaData" name="OnDemandStorageServiceContract">1033</CentralData>
<LinkData role="Customer_Contract_Info" category="SlaData" name="OnDemandStorageServiceCustomer">1038</LinkData>
<LinkData role="Provider_Contract_Info" category="SlaData" name="OnDemandStorageServiceProvider">1039</LinkData>
<LinkData role="ServiceEntity" category="SlaData" name="FileSystemServiceEntity">1031</LinkData>
<LinkRelation role="Orchestration" name="OnDemandStorageServiceOrchestration">R1000</LinkRelation>
<LinkRelation role="SLASLMMapping" name="OnDemandStorageServiceSLASLMMapping">R1001</LinkRelation>
</SchemaRelationship>
...
</SchemaRelationshipList>
<OrchestrationList>
<Orchestration name="OnDemandStorageServiceOrchestration" label="R1000">
...
<ProcessingRelationship>
<seq>30</seq>
<AlgorithmRef><Data role="SLEAlgorithm" type="Authoritative" name="ResTimeSLEAlgorithm_1_ContractualSL">1002 </Data></AlgorithmRef>
<InputParameter><Data role="QualifiedMeasurementData" name="QualifiedResponseTimeMD_ContractualSL">1005</Data></InputParameter>
<OutputParameter><Data role="SLEvaluationData" name="ResponseTimeLength_ContractualSL">1007</Data></OutputParameter>
</ProcessingRelationship>
...

```

FIG. 18B

```

<ProcessingRelationship>
  <seq>40</seq>
  <AlgorithmRef><Data role="SLEAlgorithm" type="Authoritative" name="ResTimeSLEAlgorithm_2_ContractualSL">1023</Data></AlgorithmRef>
  <InputParameter><Data role="SLEvaluationData" name="ResponseTimeLength_ContractualSL">1007</Data></InputParameter>
  <OutputParameter><Data role="SLEvaluationData" name="OnTimeRequestPercent_ContractualSL">1010</Data></OutputParameter>
</ProcessingRelationship>
...
</Orchestration>
</OrchestrationList>
<SLASLMMappingList>
  <SLASLMMapping name="OnDemandStorageServiceSLASLMMapping" label="R1001">
    ...
    <InterCategoryRelationship role= "SLEAlgorithm">
      <Group category="InternalSlmData">
        <Member name="ResTimeSLEAlgorithm_1_ContractualSL">1022</Member>
        <Member name="ResTimeSLEAlgorithm_2_ContractualSL">1023</Member>
      </Group>
      <Group category="SlcData">
        <Member name="ResTimeSLEAlgorithm_ContractualSL">1021</Member>
      </Group>
    </InterCategoryRelationship>
  </SLASLMMapping>
  ...
</SLASLMMappingList>
</SLAM>

```

FIG. 19A

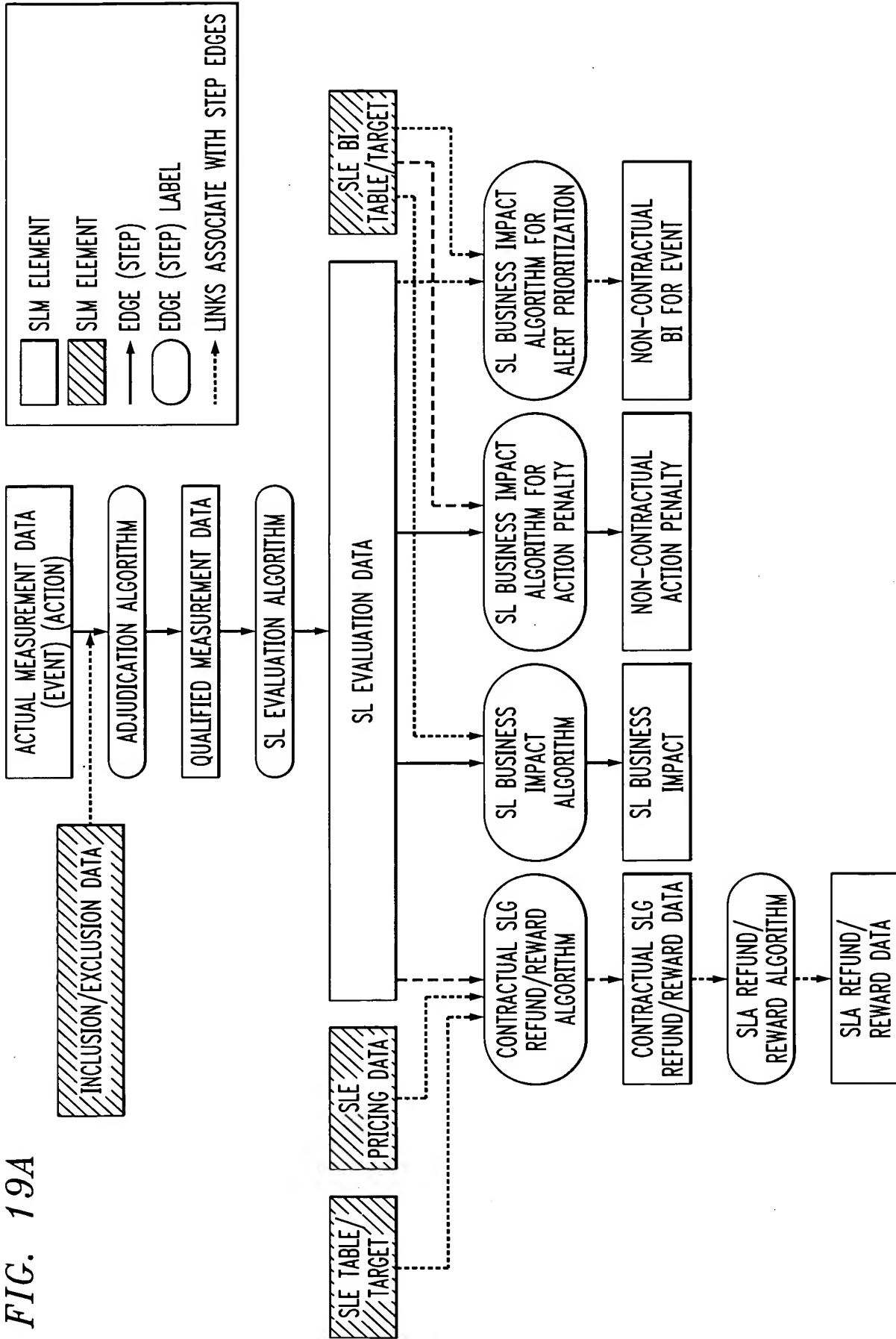


FIG. 19B

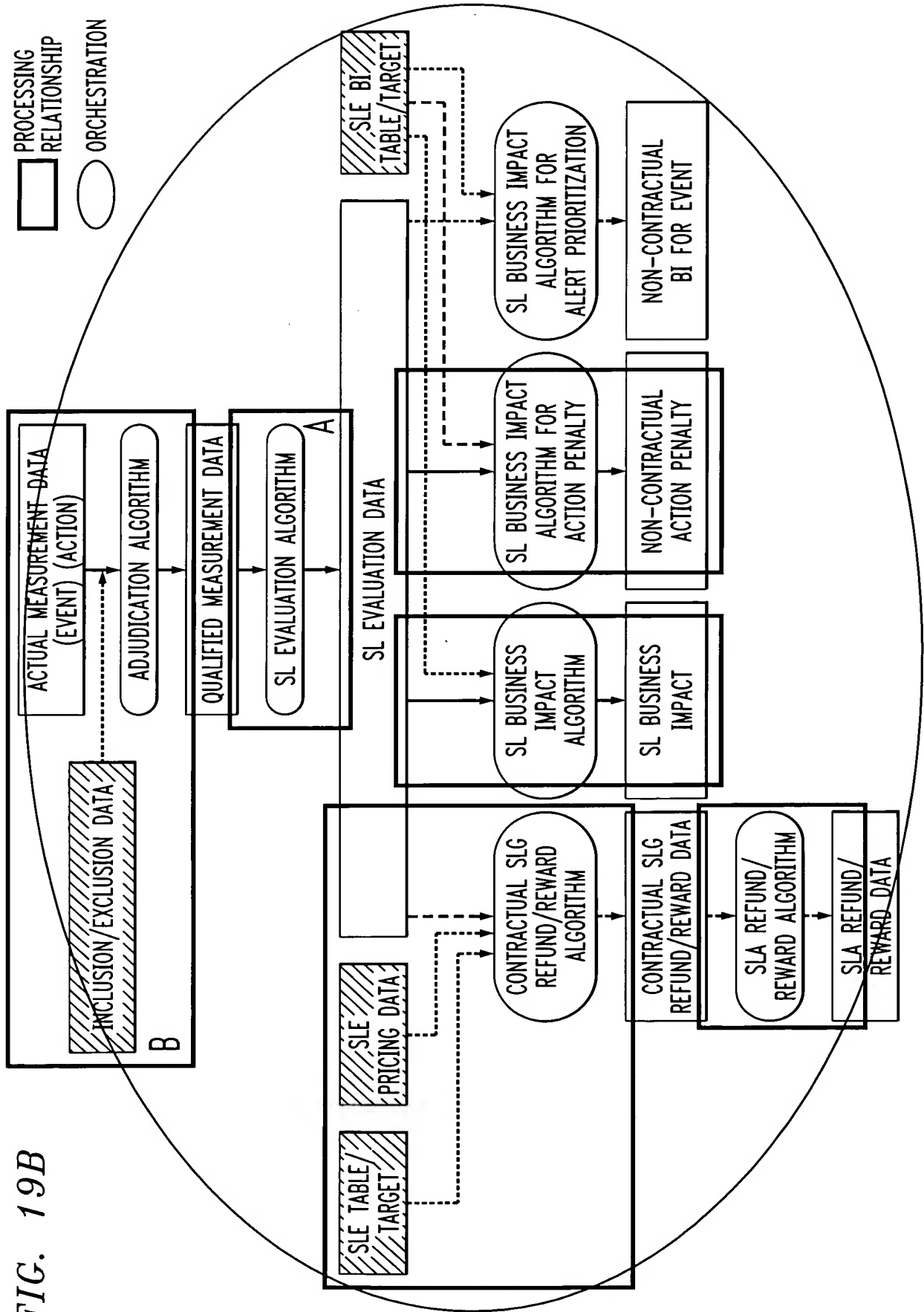




FIG. 19C

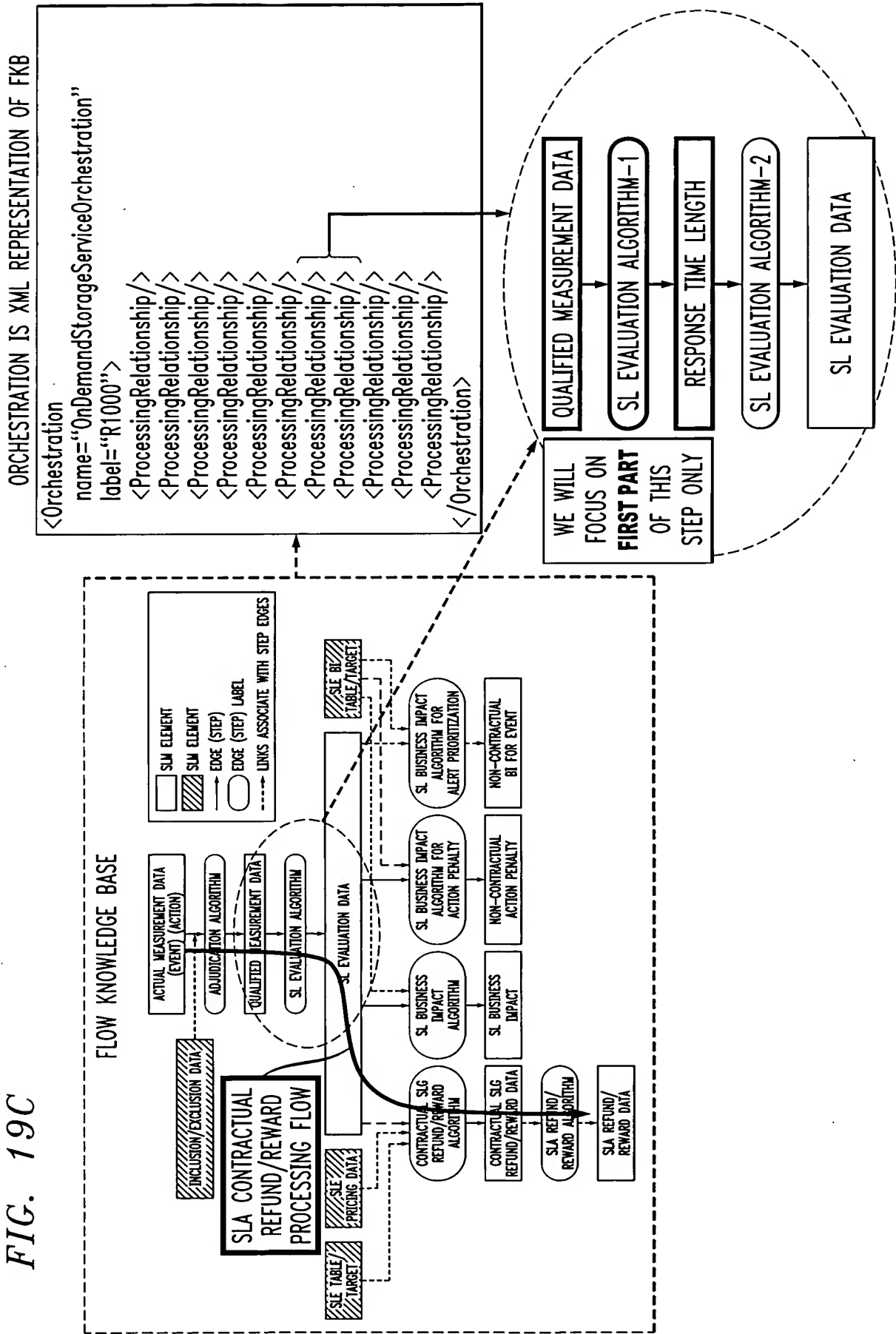


FIG. 20

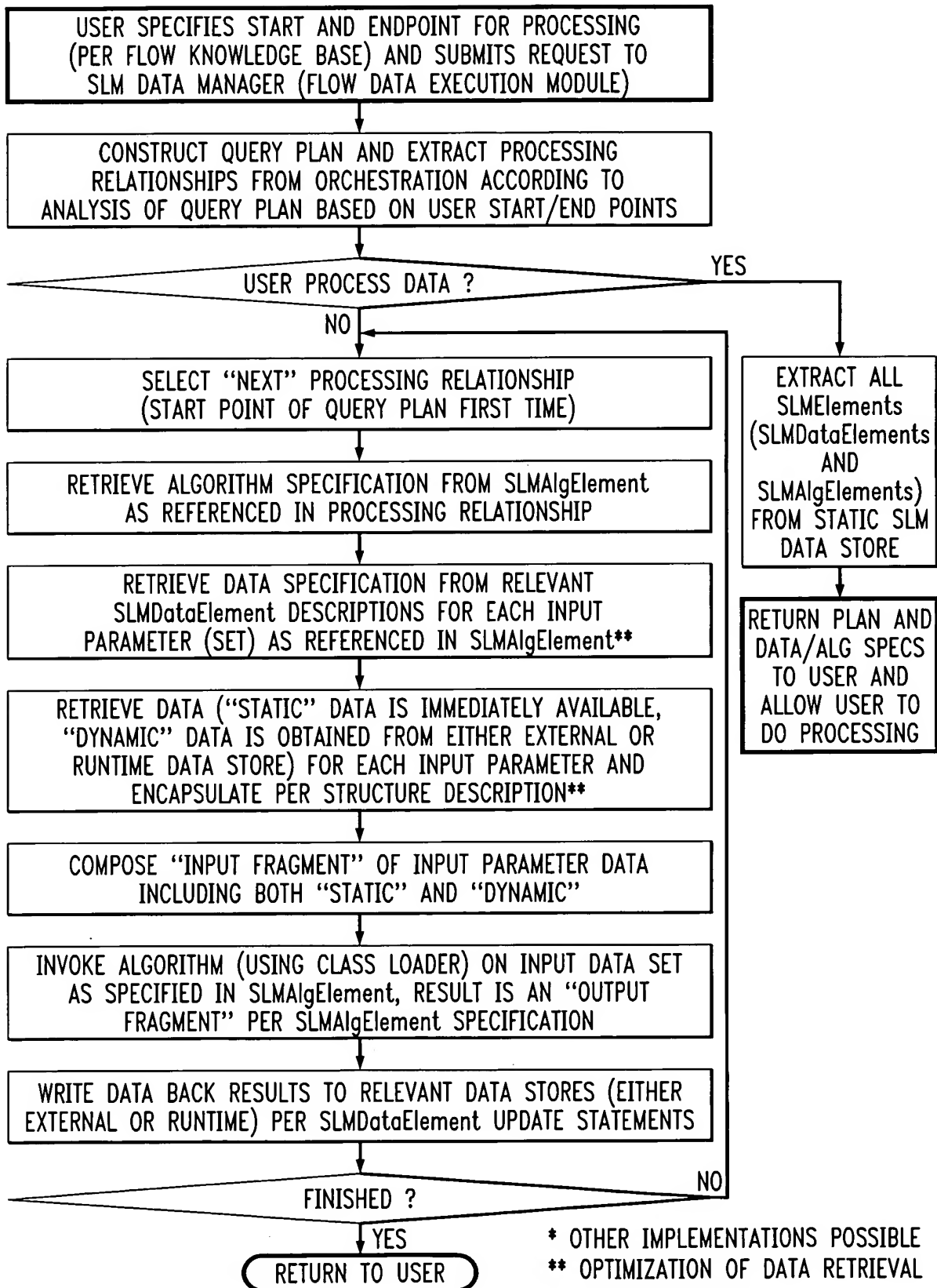


FIG. 21

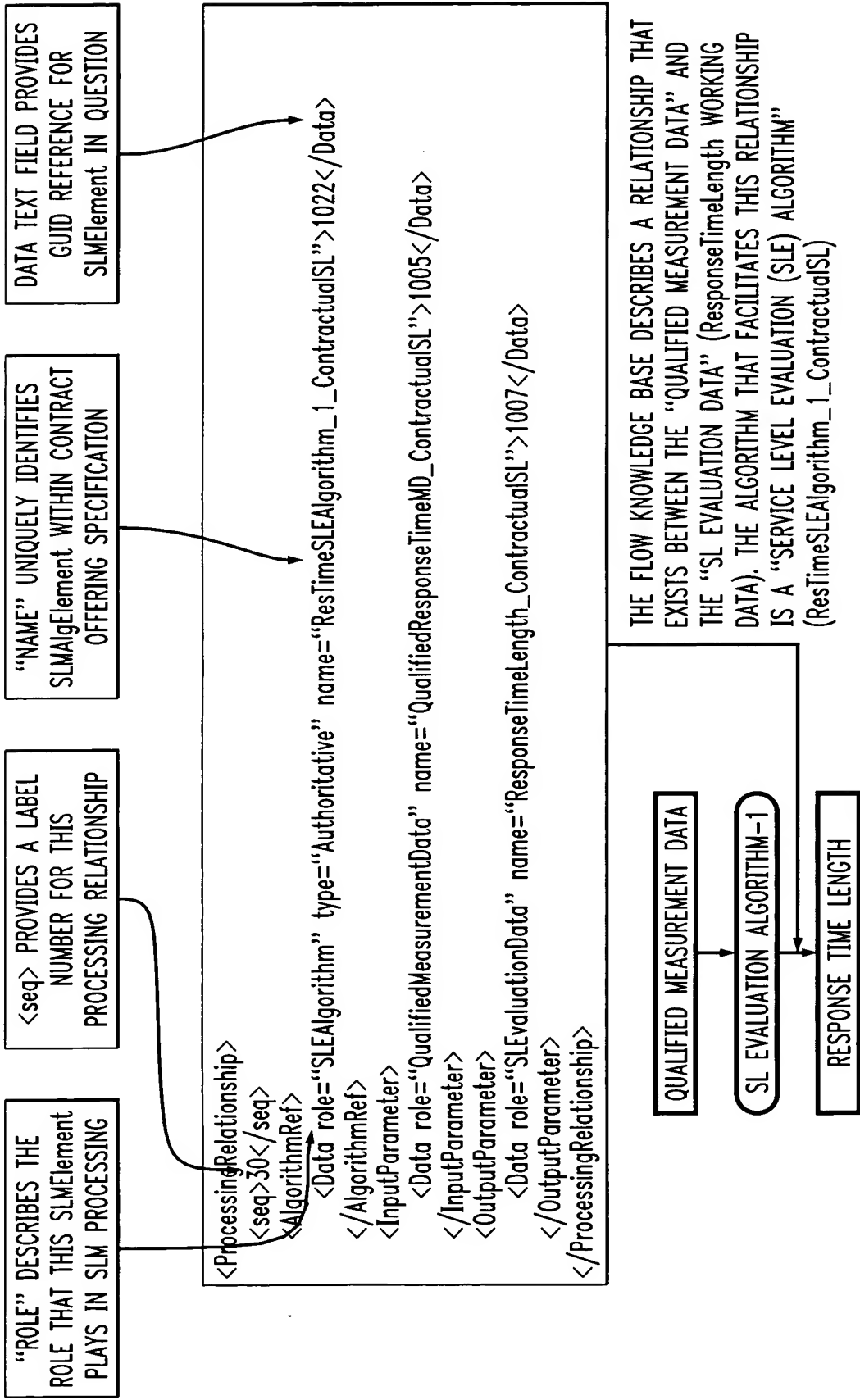


FIG. 22

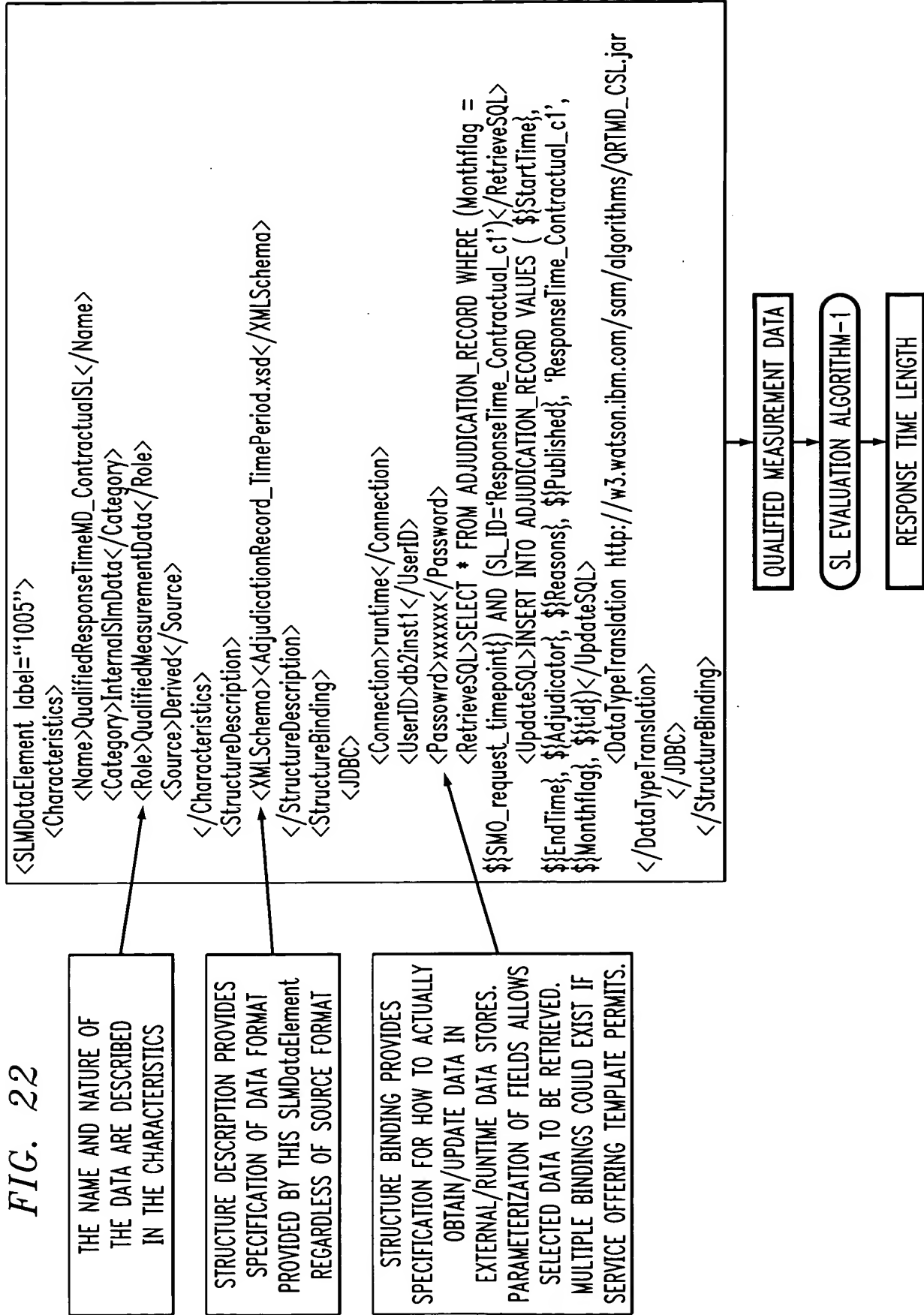
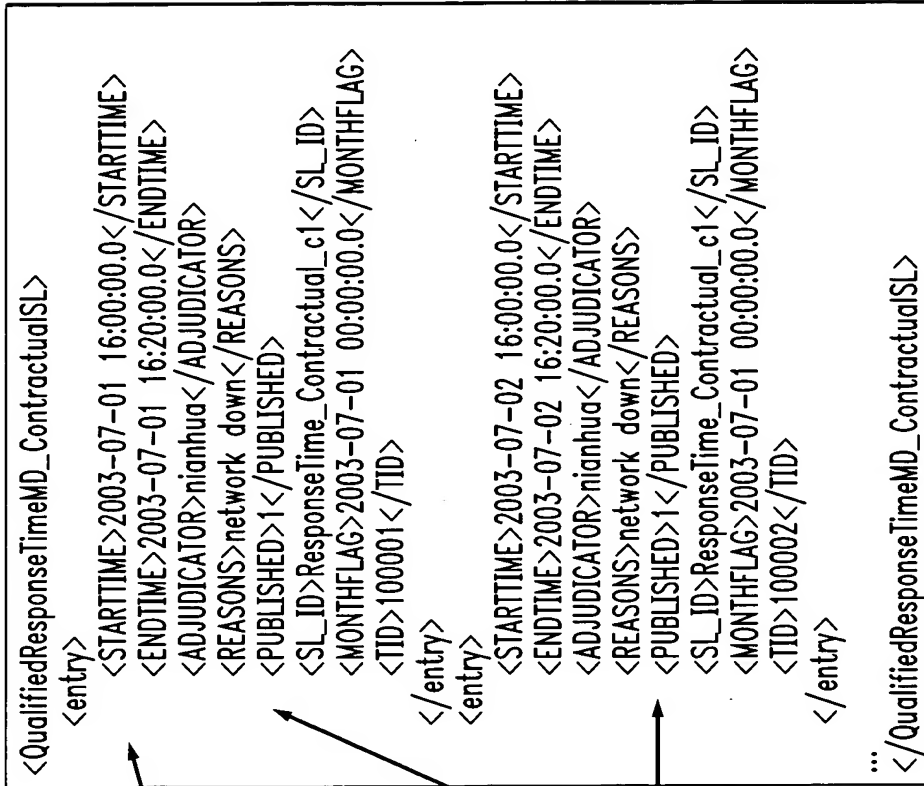


FIG. 23

THE DATA FORMAT WAS DESCRIBED  
BY THE STRUCTURE DESCRIPTION  
AdjudicationRecordTimePeriod.xsd  
(NOT SHOWN)

FIVE DATA RECORDS WERE  
RETURNED (TWO SHOWN) WHEN  
DATA SPECIFICATION WAS ACCESSED  
FOR RETRIEVAL. THE DATA WAS  
EXTRACTED FROM THE RUNTIME  
STORE, SINCE IT IS IN THE MIDDLE  
OF PROCESSING SEQUENCE



THE QualifiedResponseTimeMD\_ContractualSL IS A DATA SET PRESUMED TO EXIST IN THE RUNTIME  
DATA STORE AS DESCRIBED PER THE SCHEMA AND EXTRACTED/UPDATED PER THE SLMDataElement

FIG. 24A

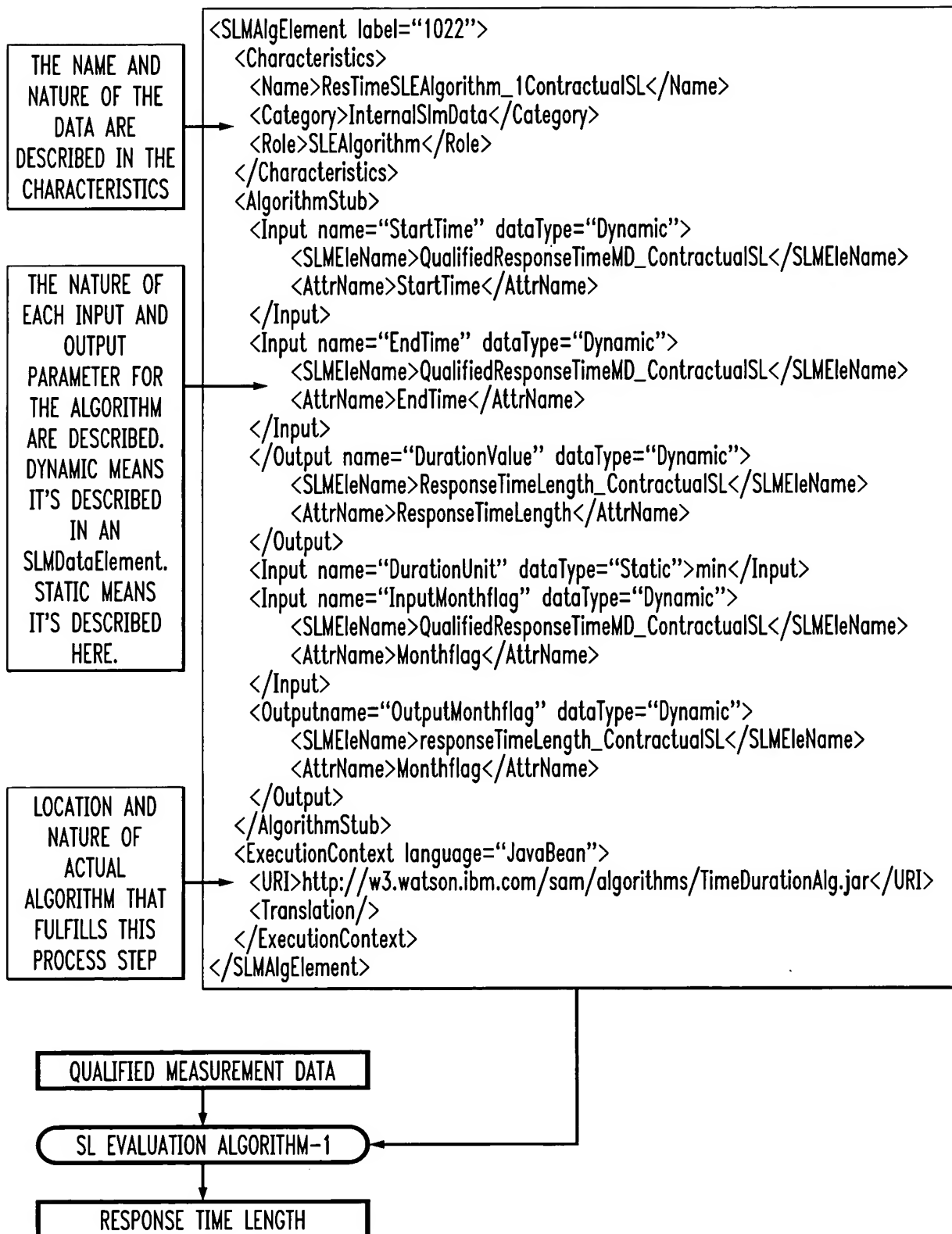


FIG. 24B

```

<SLMAlgElement label="1021">
  <Characteristics>
    <Name>ResTimeSLEAlgorithm_ContractualSL</Name>
    <Category>SLaData</Category>
    <Role>SLEAlgorithm</Role>
  </Characteristics>
  <AlgorithmDescription>
    <AlgorithmType>PercentCompletedInTimeAlg</AlgorithmType>
    <Comment>
      [1]get all the entries from ${DividentSource} within ${TimeInterval},
      entry data unit is ${DividentSourceUnit}
      [2]count the number of above entries whose values are
      ${DividentFilterComparator} ${DividentFilterThreshold} ${DividentFilterUnit},
      [3]count the total number of entries from ${DivisorSource} within ${TimeInterval}
      [4]divide the result of step [2] by the result of step [3]
      [5]the result of step [4] is ${ResultValue}, the data unit should be ${ResultUnit}.
    </Comment>
    <Input name="DividentSource" dataType="Dynamic">
      <SLMEleName>'Qualified Measurement Data for On Demand Storage Provisioning Response Time'</SLMEleName>
      <AttrName>'completion_confirmation_timestamp - request_timestamp'</AttrName>
    </Input>
    <Input name="DividentSourceUnit" dataType="Static">min</Input>
    <Input name="DividentFilterComparator" dataType="Static">le</Input>
    <Input name="DividentFilterThreshold" dataType="Static">30</Input>
    <Input name="DividentFilterUnit" dataType="Static">min</Input>
    <Input name="DivisorSource" dataType="Dynamic">
      <SLMEleName>'Qualified Measurement Data for On Demand Storage Provisioning Response Time'</SLMEleName>
      <AttrName>'completion_confirmation_timestamp - request_timestamp'</AttrName>
    </Input>
    <Input name="TimeInterval" dataType="Static">monthly</Input>
    <Input name="ResultUnit" dataType="Static">percentage</Input>
    <Output name="ResultValue" dataType="Dynamic">
      <SLMEleName>OnTimeRequestPercent_ContractualSL</SLMEleName>
      <AttrName>OnTimeRequestPercent</AttrName>
    </Output>
  </AlgorithmDescription>
</SLMAlgElement>

```

FIG. 24C

```

<SLMAlgElement label="1023">
  <Characteristics>
    <Name>ResTimeSLEAlgorithm_2_ContractualSL</Name>
    <Category>InternalSimData</Category>
    <Role>SLEAlgorithm</Role>
  </Characteristics>
  <AlgorithmStub>
    <!--mapping between SLMDataElement name and the parameter names of algorithm script -->
    <Input name="DividentSource" dataType="Dynamic">
      <SLMEleName>ResponseTimeLength_ContractualSL</SLMEleName>
      <AttrName>ResponseTimeLength</AttrName>
    </Input>
    <Input name="DividentSourceUnit" dataType="Static">min</Input>
    <Input name="DividentFilterComparator" dataType="Static">le</Input>
    <Input name="DividentFilterThreshold" dataType="Static">30</Input>
    <Input name="DividentFilterUnit" dataType="Static">min</Input>
    <Input name="DivisorSource" dataType="Dynamic">
      <SLMEleName>ResponseTimeLength_ContractualSL</SLMEleName>
      <AttrName>ResponseTimeLength</AttrName>
    </Input>
    <Input name="TimeInterval" dataType="Static">monthly</Input>
    <Input name="ResultUnit" dataType="Static">percentage</Input>
    <Output name="ResultValue" dataType="Dynamic">
      <SLMEleName>OnTimeRequestPercent_ContractualSL</SLMEleName>
      <AttrName>OnTimeRequestPercent</AttrName>
    </Output>
    <Input name="InputMonthflag" dataType="Dynamic">
      <SLMEleName>ResponseTimeLength_ContractualSL</SLMEleName>
      <AttrName>Monthflag</AttrName>
    </Input>
    <Output name="OutputMonthflag" dataType="Dynamic">
      <SLMEleName>OnTimeRequestPercent_ContractualSL</SLMEleName>
      <AttrName>Monthflag</AttrName>
    </Output>
  </AlgorithmStub>
  <ExecutionContext language="JavaBean">
    <URI>file://home/niali/July/DataManager/FlowDataExecutor/PercentCompletedInTimeAlg.jar</URI>
    <Translation/>
  </ExecutionContext>
</SLMAlgElement>

```



FIG. 25

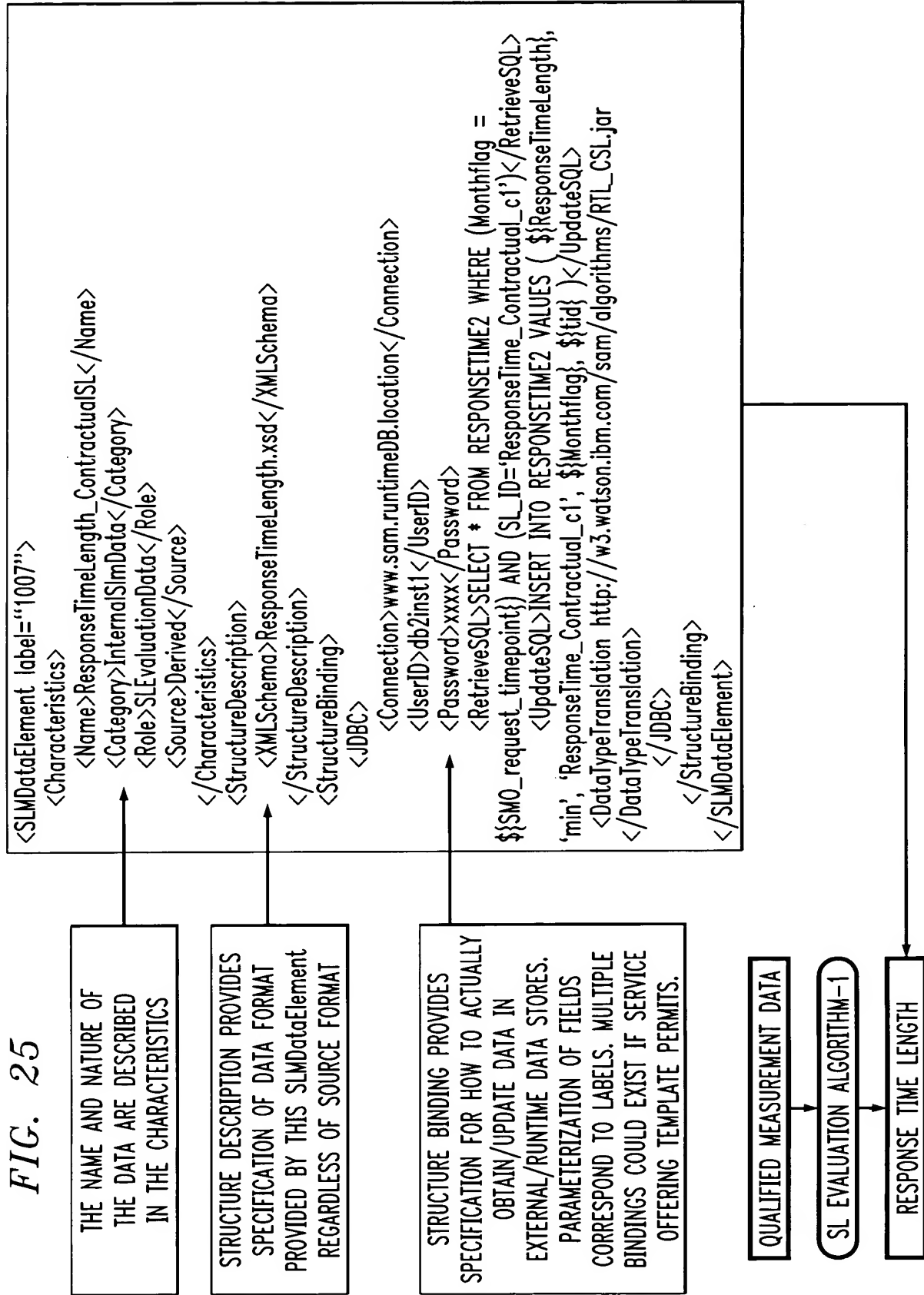
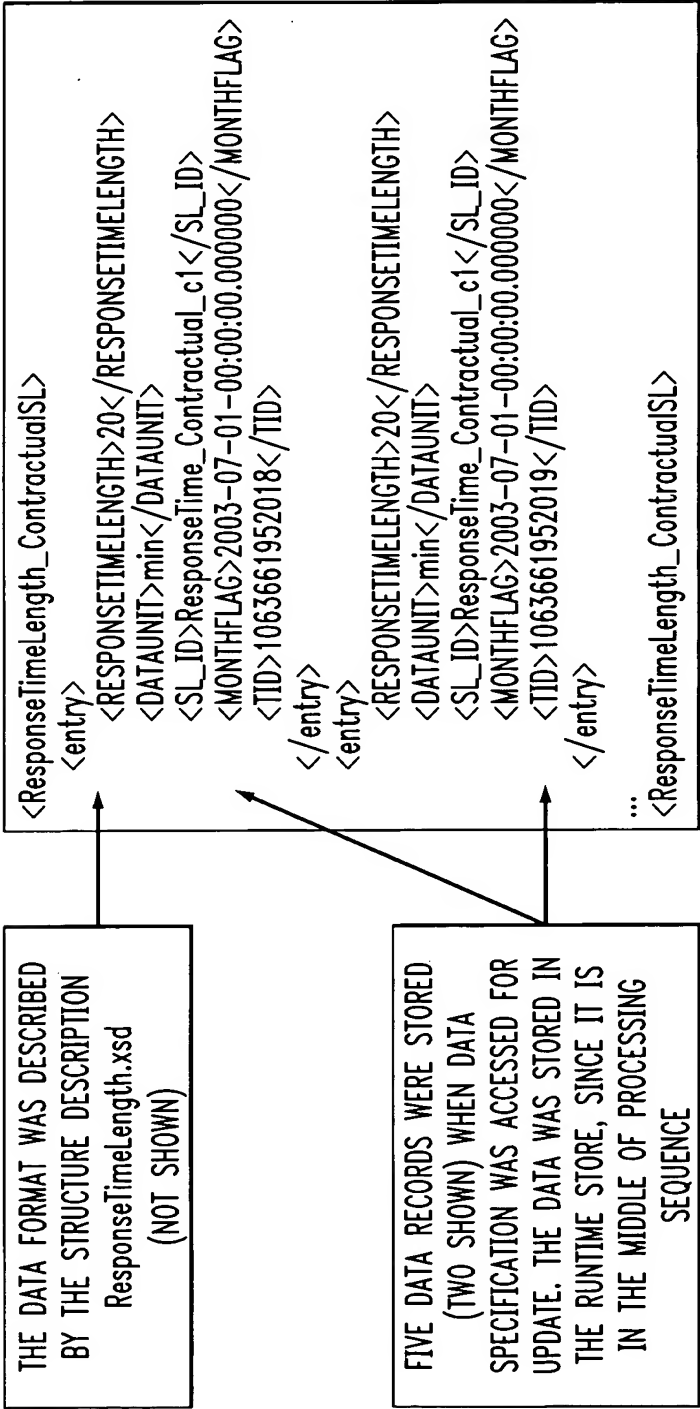


FIG. 26



THE ResponseTimeLength\_ContractualSL IS A DATA SET THAT WILL EXIST IN THE RUNTIME DATA STORE AS DESCRIBED PER THE SCHEMA AND IS EXTRACTED/UPDATED PER THE SLMDaElement



FIG. 27B

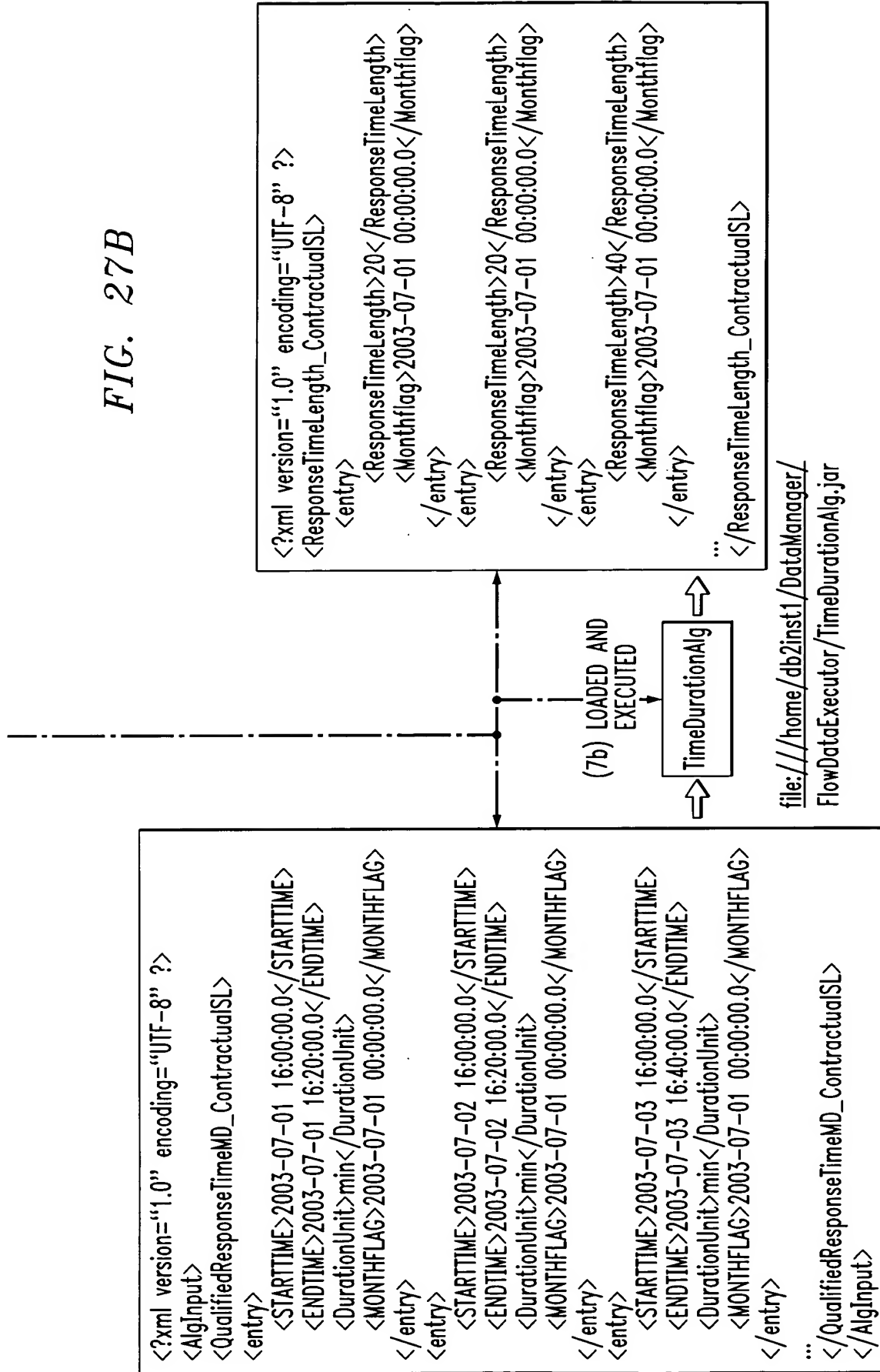


FIG. 28

